

UNCLASSIFIED

TECHNICAL REPORT 2004-016

**Joint Single Integrated Air Picture (SIAP)
System Engineering Organization (JSSEO)
Standard Event Test Readiness Report Template**

DECEMBER 2004

**Joint Single Integrated Air Picture (SIAP)
System Engineering Organization (JSSEO)**
1851 South Bell Street
Crystal Mall 3, Suite 1188
Arlington, VA 22202

**DISTRIBUTION STATEMENT A – Approved for public release; distribution is
unlimited**

**GOVERNMENT RIGHTS IN DATA STATEMENT – Reproduction of this publication in
whole or in part is permitted for any purpose of the United States Government**

UNCLASSIFIED

Report Documentation Page			<i>Form Approved OMB No. 0704-0188</i>					
<p>Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.</p>								
1. REPORT DATE DEC 2004	2. REPORT TYPE Technical Report	3. DATES COVERED 00-00-2004 to 00-00-2004						
4. TITLE AND SUBTITLE Joint Single Integrated Air Picture (SIAP) System Engineering Organization (JSSEO) Standard Event Test Readiness Report Template			5a. CONTRACT NUMBER					
			5b. GRANT NUMBER					
			5c. PROGRAM ELEMENT NUMBER					
6. AUTHOR(S)			5d. PROJECT NUMBER					
			5e. TASK NUMBER					
			5f. WORK UNIT NUMBER					
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Single Integrated Air Picture Joint Program Office (SIAP JPO), 1851 S. Bell Street, Crystal Mall 3, Suite 1188, Arlington, VA, 22202			8. PERFORMING ORGANIZATION REPORT NUMBER TR 2004-016					
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Single Integrated Air Picture Joint Program Office (SIAP JPO), 1851 S. Bell Street, Crystal Mall 3, Suite 1188, Arlington, VA, 22202			10. SPONSOR/MONITOR'S ACRONYM(S) SIAP JPO					
			11. SPONSOR/MONITOR'S REPORT NUMBER(S) TR 2004-016					
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited								
13. SUPPLEMENTARY NOTES The Joint Single Integrated Air Picture (SIAP) System Engineering Organization (JSSEO) Standard Event Test Plan Template (TR 2004-008) is a companion to this template.								
14. ABSTRACT <p>This document is a template for Test Readiness Reviews (TRR) that was used for Joint Single Integrated Air Picture (SIAP) System Engineering Organization (JSSEO) Test Events. The Test Readiness Review is the second of two planning documents that were completed prior to the test event. The Test Plan is the first document, and it lays out high-level objectives, roles, and responsibilities, and other preliminary information for early approval. The TRR builds on and supersedes the Test Plan. Additionally, the TRR documents that all necessary preparations for conducting the test have been completed, and it is the execution plan for conducting the runs for records. At JSSEO, signatures on the TRR constituted authority to begin testing. In addition to specifying the structure and formatting of the Test Readiness Report, this template also provides some content instructions and examples.</p>								
15. SUBJECT TERMS SIAP, Test Plan, Template, Test Readiness								
16. SECURITY CLASSIFICATION OF: <table border="1"> <tr> <td>a. REPORT unclassified</td> <td>b. ABSTRACT unclassified</td> <td>c. THIS PAGE unclassified</td> </tr> </table>			a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified	17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 106	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified						

UNCLASSIFIED

TECHNICAL REPORT 2004-016

**Joint Single Integrated Air Picture (SIAP)
System Engineering Organization (JSSEO)
Standard Event Test Readiness Report Template**

DECEMBER 2004

**Joint Single Integrated Air Picture
System Engineering Organization (JSSEO)**

1851 South Bell Street
Crystal Mall 3, Suite 1188
Arlington, VA 22202

DISTRIBUTION STATEMENT A :

Approved for public release;
distribution is unlimited

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

TECHNICAL REPORT 2004-016

**Joint Single Integrated Air Picture (SIAP)
System Engineering Organization (JSSEO)
Standard Event Test Readiness Report Template**

DECEMBER 2004

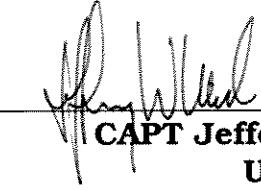
**Joint Single Integrated Air Picture
System Engineering Organization (JSSEO)**

1851 South Bell Street
Crystal Mall 3, Suite 1188
Arlington, VA 22202




Steve Karoly
Chief, Test and Analysis
Division, JSSEO


Col Harry Dutchyshyn,
USAF
Deputy Director, JSSEO


CAPT Jeffery W. Wilson,
USN
Technical Director, JSSEO


Brig Gen (S) Daniel R. Dinkins Jr.,
USAF
Director, JSSEO

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

STANDARD TEST READINESS REPORT TEMPLATE

**Joint Single Integrated Air Picture (SIAP)
System Engineering Organization (JSSEO)
Event Name (e.g., JDEP Federation E-2C HWIL Pilot)
Test Readiness Report**

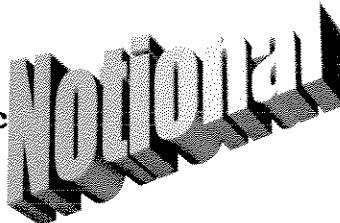
Approved by:

Note: The Director, JSSEO, or a designated representative, will be the approval authority for all Test Readiness Reports. Additional approval signatories will be established as appropriate based on the scope, complexity, level of visibility, and participants in the test event. Signatures on this report constitute the authority to begin testing.

JSSEO

Name of Primary Point of Contact

Date



Approval Agency (e.g., JTAMDO, JFCOM)

Name of Primary Point of Contact

Date

Approval Agency (e.g., JITC)

Name of Primary Point of Contact

Date

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

STANDARD TEST READINESS REPORT TEMPLATE

**Joint Single Integrated Air Picture (SIAP)
System Engineering Organization (JSSEO)
Event Name (e.g., JDEP Federation E-2C HWIL Pilot)
Test Readiness Report**

Submitted By:

Test Director

Date

Name of Test Director (Organization) (M&S venues)

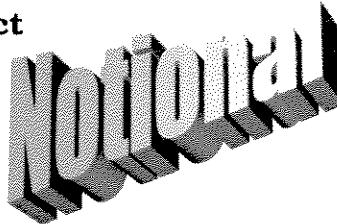
Reviewed By:

Normally the SIAP Analysis Team Executive Steering Group (SAT ESG) will review the Test Readiness Report in addition to a cognizant representative from each participating organization.

Reviewal Agency (e.g., E-2C)

Date

Name of Primary Point of Contact



Reviewal Agency (e.g., E-2C)

Date

Primary Point of Contact

Review Agency (e.g., SIAP Analysis Team ESG)

Date

Name of Primary Point of Contact

SAT ESG Co-Chair (JSSEO)

Date

Name of Co-Chair

SAT ESG Co-Chair (USJFCOM)

Date

Name of Co-Chair

UNCLASSIFIED

GOVERNMENT RIGHTS IN DATA STATEMENT

Reproduction of this publication in whole
or in part is permitted for any purpose
of the United States Government

EXECUTIVE SUMMARY

The Test Readiness Report (TRR) is the second of two planning documents to be completed prior to a Test Readiness Review. The Test Plan is the first document, and it lays out high-level objectives, roles and responsibilities, and other preliminary information for early approval. The TRR documents that all necessary preparations for conducting the test have been completed. It builds on and supercedes the Test Plan and is the execution plan for conducting the runs for record. Signatures on the TRR constitute authority to begin testing

This template will be tailored depending on the type of event. The section heading indicates paragraphs that are only appropriate for certain types of test venues.

In the TRR Executive Summary, provide a summary of essential information regarding the testing/simulation event. Include high-level objectives, dates and location of the event and how the results will be used. Provide a summary to support a recommendation to proceed forward with the test based on the following outline:

- 1. System test status and checkout performance**
- 2. Federation Object Model (FOM) status (M&S venues)**
- 3. Equipment and computer program configuration**
- 4. Test coordination**
- 5. Success criteria**
- 6. Go/No-Go criteria**
- 7. Recommendation for accreditation of federation (M&S venues)**
- 8. Recommendation to proceed with the test.**

STYLE AND FORMATTING GUIDELINES

This template has specific style types built into it to allow common formatting across Test Readiness Reports. Headings are defined as first order, second order, third order, and so on; or, as number one, number two, and number three. There should seldom be a number four heading. These heading styles are called Heading 1, Heading 2, Heading 3, and Heading 4. They are of Bookman Old Style font, are boldface, and not underlined. Numbering goes as 1., 1.1, 1.1.1, etc.

Figures use the style "Caption." Tables use the style "Table Center." Appendices use the style "Annex."

Updating Table of Contents, List of Figures, List of Tables, and List of Appendices is done using the following steps:

- a) Identify the table or list you wish to update and right-click inside it.
- b) Select "Update field."
- c) If you want to update the table entries AND pages numbers, select "Update entire table." If you want to just update page numbers, select "Update page numbers only."

In accordance with JSSEO configuration management polity, the footer of the document should have the following format:

WBS number_Test Readiness Report(Document Control Number)_Version
Number_JSSEO_YYMMDD

UNCLASSIFIED

TABLE OF CONTENTS

1. INTRODUCTION	1-1
1.1 Background.....	1-1
1.2 Purpose of Test.....	1-1
1.3 Scope of Test	1-1
2. OVERALL TEST DESIGN	2-1
2.1 Concept of Test Operations	2-1
2.2 Brief Experiment Description	2-1
2.2.1 Experiment Objectives	2-1
2.2.2 Experiment Hypothesis.....	2-1
2.2.3 Attributes and MOPS Measured.....	2-1
2.2.4 Data Management and Success Criteria.....	2-1
2.2.5 Test Methodology.....	2-2
2.2.5.1 Baseline Experiment.....	2-2
2.2.6 Requisites.....	2-2
2.2.7 Data Reduction and Analysis Method	2-2
2.2.8 Analysis Team	2-2
2.2.9 Reporting Schedule	2-3
2.3 Additional Experiments.....	2-3
3. MODELING AND SIMULATION (M&S Venues)	3-1
3.1 Federation Design.....	3-1
3.2 Federate and Federation Component Roles	3-1
3.2.1 Federate Name (e.g., E-2C Federate, ESTEL)	3-1
3.2.2 Support Federates	3-2
3.2.3 Supporting Tools	3-2
3.3 Verification, Validation, and Accreditation (VV&A) Process	3-3
4. TEST SCHEDULE.....	4-1
5. TEST MANAGEMENT AND ORGANIZATION.....	5-1
5.1 Roles and Responsibilities.....	5-1
5.1.1 Customer Name (e.g., JSSEO).....	5-1
5.1.2 Test Sponsor Name (e.g., Joint Theater Air and Missile Defense Organization (JTAMDO))	5-2
5.1.3 Application Area Manager (e.g., Joint National Integration Center (JNIC)).....	5-2
5.1.4 Infrastructure/Technical Manager (e.g., Joint Interoperability Command (JITC)).....	5-2
5.1.5 Participating Service(s) (e.g., Lower Tier Project Office/Software Engineering Directorate (LTPO/SED))	5-3
5.1.6 Supporting Agencies (e.g., Naval Surface Warfare Center (NSWC) Corona).....	5-3
5.1.7 SIAP Analysis Team (SAT): Executive Steering Group (ESG) and Other Test Representatives	5-3

UNCLASSIFIED

5.1.8 JSSEO Common Reference Scenarios (CRS) Team	5-3
5.2 On-Site Organization	5-4
6. TEST READINESS REVIEW PREPARATIONS	6-1
6.1 Tasks Accomplished	6-1
7. TEST EXECUTION.....	7-1
7.1 Pre-Test Briefing	7-1
7.2 Test Execution and Data Collection.....	7-1
7.3 Daily Test Schedule	7-1
7.4 Data Analysis	7-2
7.5 Test Observation Reports (TORs).....	7-2
7.6 Post Test Briefing.....	7-2
8. TEST REPORTING.....	8-1
8.1 Quick-Look Report.....	8-1
8.2 Technical Report Outline	8-1
8.2.1 Summary and Lessons Learned	8-2
8.2.2 Unresolved Issues.....	8-3
9. REFERENCES.....	9-1

UNCLASSIFIED

LIST OF FIGURES

Figure 1. Notional Federation Design.....	3-1
Figure 2. JSSEO VV&A Process	3-5
Figure 3. Notional Schedule	4-1
Figure 4. Notional organization of an event.....	5-1
Figure 5. Notional Test Schedule	7-2
Figure C-1. Federation development and execution process	C-1
Figure F-1. Example internal network diagram.....	F-1
Figure F-2. Example simulation suite data flow diagram.....	F-3
Figure J-1. SIAP HWIL JDEP pilot federation.....	J-1
Figure J-2. FOM object classes.....	J-2
Figure J-3. FOM interaction classes	J-3
Figure J-4. FOM key attributes	J-4
Figure K-1. Data extraction diagram.....	K-2
Figure K-2. Notional number of correlations vs azimuth bias.....	K-4
Figure K-3 Notional data collection and analysis flow diagram.....	K-5

UNCLASSIFIED

LIST OF TABLES

Table 1. Standard Results Technical Report Outline	8-1
Table 2. Notional Reporting Timeline	8-2
Table D-1 Federates Requiring V&V Plan	D-1
Table D-2 V&V Schedule	D-1
Table D-3. V&V Checklist.....	D-2
Table H-1. Run Matrix.....	H-1
Table H-2 Alternative Run Matrix	H-3
Table H-3. Test Procedures.....	H-5
Table I-1. Detailed Action Plan	I-1
Table J-1. Publish/Subscribe Activity of Object Classes	J-5
Table J-2. Publish/Subscribe Activity of Interaction Classes	J-6
Table K-B-1. Computer Program Requirements.....	K-7
Table K-B-2. PET Input Table, WAM Format	K-7
Table L-1. Test Observation Report (TOR).....	L-1
Table M-1. Participants in the JDEP Planning	M-1
Table M-2. Test Directors/Site Test Directors	M-1
Table M-3. Data Collection Team.....	M-1
Table M-4. Site Leads/POCs.....	M-1
Table M-5. Lead Analysts	M-2

UNCLASSIFIED

LIST OF APPENDICES

APPENDIX A: ACRONYMS	A-1
APPENDIX B: SIAP METRICS	B-1
APPENDIX C: FEDERATION DEVELOPMENT PROCESS (M&S VENUES)	C-1
APPENDIX D: VALIDATION AND VERIFICATION (V&V) PLANS (M&S VENUES)	D-1
APPENDIX E: VALIDATION AND VERIFICATION (V&V) REPORTS (M&S VENUES)	E-1
APPENDIX F: TEST CONFIGURATION	F-1
APPENDIX G: DETAILED SCENARIO DESCRIPTION	G-1
APPENDIX H: DETAILED TEST PROCEDURES.....	H-1
APPENDIX I: DETAILED ACTION PLAN	I-1
APPENDIX J: FEDERATION DEVELOPMENT.....	J-4
APPENDIX K: DATA ANALYSIS PLAN.....	K-1
APPENDIX L: SAMPLE FORM.....	L-1
APPENDIX M: POINTS OF CONTACT.....	M-1

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

1. INTRODUCTION

1.1 Background

Summarize significant historical data, outline key players for the test, approaches to testing, major focus areas, and capabilities of the testing/simulation process. Discuss the basis of approach for testing. Reference should be made to previous related tests, problems found during operational use, etc. Include topics such as:

1. Dates of Significant Milestones
2. Origin
3. Process
4. Timeframe and Priorities
5. Location
6. Environment
7. Provide a brief description of what system(s) is/are under test.

1.2 Purpose of Test

Succinctly state the top-level purpose of the test. Identify the customer for the test results. Describe the final product of the test (i.e., the deliverable) and how the customer will use it.

1.3 Scope of Test

Identify the top-level test objectives, hypotheses, and test description. Identify the participating organizations, test elements, and assessment constraints and limitations.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

2. OVERALL TEST DESIGN

2.1 Concept of Test Operations

Provide an overview of the experiment(s) that will be conducted during the test.

2.2 Brief Experiment Description

Each experiment will have its own description that should follow the outline described in this Section.

2.2.1 Experiment Objectives

Provide details regarding the specific test. State the date, how many runs will be conducted, and overall objectives. Also provide specifics regarding the test data to be examined.

Provide details regarding the number of runs to be conducted and how they will be conducted. Provide a sequence of events. For example:

1. System baseline
2. Time events
3. Data registration events

2.2.2 Experiment Hypothesis

Briefly describe hypothesis to be provided or disproved in the experiment. Include any relevant background or specific information about experiment. Specify under what conditions issue occurs.

2.2.3 Attributes and MOPS Measured

Briefly describe the parameters or outputs that will be used to evaluate system performance. MOPs should be short definitive statements beginning with an action verb (e.g., “measure” or “calculate”). More detailed description of the MOPs should be provided in the Data Analysis Plan Appendix.

2.2.4 Data Management and Success Criteria

Summarize data and instrumentation requirements and data management strategy. A Data Management and Analysis Plan will be provided as an appendix to the Test Readiness Report.

UNCLASSIFIED

For the data requirements listed, identify a process for determining that data has been properly collected. (Did the test go as planned? Was data collection successful? Is data quality sufficient for post-event analysis? More or supplemental data needed? EOIs identified and packaged for analysis? TORs collected? Media/tapes set for next op?) .

2.2.5 Test Methodology

Describe test procedures associated with the MOP to acquire the appropriate information to adequately answer the MOP.

2.2.5.1 Baseline Experiment

Describe how a baseline for Critical Experiments will be established.

For example: "The first set of runs will support establishing a baseline for the E-2C SIAP performance. Two runs will be taken to ensure that the data between the two runs produces similar SIAP results and that the process is repeatable. SIAP attributes will be calculated for these runs and will be used as the standard bearer against which all parametric analysis will be compared. It is expected that both operator/analyst observations and the SIAP attributes will reflect a minimum of differences between the two runs. If repeatable baseline runs are not achieved, parametric runs will not be conducted until the cause for lack of repeatability is determined and fixed."

2.2.6 Requisites

Identify the operational context required to properly collect the data for the experiment. Include number of units required.

2.2.7 Data Reduction and Analysis Method

Identify the data reduction process, including tools used, how the data will be used and by whom, and how the data will be provided to analysis team. Lay out analysis process: Identify data reduction process (tools used, who is doing what with the data, how data is provided to analysis team); analysis method, including description of tools/algorithms for conducting analysis.

2.2.8 Analysis Team

List the analysis team lead and key team members. List units involved in the experiment and points of contact.

2.2.9 Reporting Schedule

Provide the reporting schedule for the analysis to be conducted. Include any constraints or contingencies on delivering the report.

2.3 Additional Experiments

If the test includes multiple experiments, describe the first critical experiment in section 2.2, then add sections 2.3, 2.4,..., 2.n as necessary for each of n critical experiments. Follow the format of section 2.2 for these additional sections.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

3. MODELING AND SIMULATION (M&S Venues)

3.1 Federation Design

This section provides a description of the test, including design and roles of each federate. Include an overview of the components, interfaces, systems' roles in the federation, how they are implemented, and any support elements (Figure 1). List each federate and document further detail for each.

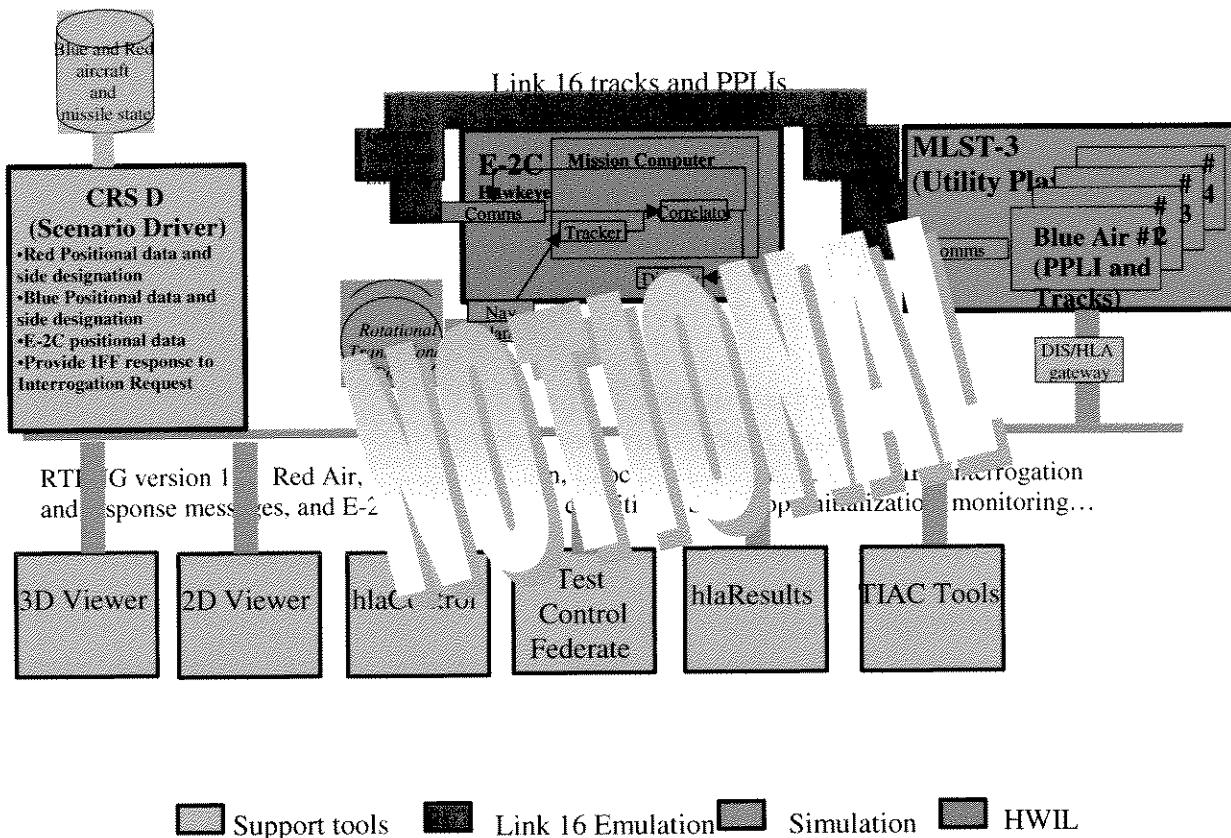


Figure 1. Notional Federation Design

3.2 Federate and Federation Component Roles

Provide a functional description of the Federates that will be used during the event.

3.2.1 Federate Name (e.g., E-2C Federate, ESTEL)

Role in Federation:

- State federate's role(s) in the federation.

UNCLASSIFIED

- For example: Simulates E-2C APS-145 radar, IFF interrogator/transponder, and navigational systems.

Constraints/Limitations

- State federate's constraints/limitations.

Implementation:

- State federate's implementation.
- For example: AN/APS-145 Radar is simulated using RISS

Federation Verification, Validation, and Accreditation (VV&A):

- State pertinent VV&A information.

3.2.2 Support Federates

Identify and describe support federates required for the event. For example:

Test Control

- Adapted from Navy Infrastructure (NI) effort
- Provides federation start/stop and monitoring.

hlaResults® Version 2.0

- Commercial product to collect data in federation and play back data.

3.2.3 Supporting Tools

Identify and describe supporting tools that are required for the event. For example:

Command, Control, Communication, and Intelligence (C3I) Engineering and Evaluation System (CEES)

- Interoperability tool developed by Redondo Systems, Inc.
- Monitors and collects TADIL J and DIS truth data.

Joint Analysis Display Environment (JADE)

- Three-dimensional quick-look tool during runs.
- Monitors and collects TADIL J and HLA truth data.
- Post-mission three dimensional (3D) replay capability

Tactical Office (TAO)

- Three-dimensional quick-look tool during test runs.
- Monitors and collects ECS, ICC, TADIL J, and DIS truth data.
- Post-mission 2D replay capability.

Performance Evaluation Tool (PET)

- Metrics evaluation tool developed by NSWC Corona.
- Incorporates ECS, ICC, TADIL J, and HLA truth data.
- Post-mission 2D replay capability.
- Seamless interoperation with ARCTIC.

Automatic Reconstruction and Correlation Tool for Interoperability Characterization (ARCTIC)

- Performs Automatic Truth to System track matching.
- Seamless interoperation with PET.
- Flexible/tailorable to all types of system data.

Details on the federates and federation, including the data exchange among the federates as specified in the federation object model (FOM) and the federation agreements can be found in the APPENDIX H: Federation Description. The equipment and computer program configurations of the federation are found in APPENDIX D: Test Configuration.

3.3 Verification, Validation, and Accreditation (VV&A) Process

VV&A are required to determine that a simulation or federation of simulations is appropriate to use for a particular test objective. Models and simulations must be accredited for their intended use. This is particularly important if a new version was required to be built to meet the test objectives. Additionally, step 5 of the FEDEP process involves integrating and testing the federation. Within that step, JSSEO has developed a verification, validation, and accreditation process that will be applied to this test. DoDI 5000.61 provides the following definitions:

Verification: the process of determining that a model implementation and its associated data accurately represent the *developer's* conceptual description and specifications. Verification answers the question, "Did I build the thing right?"

Validation: the process of determining the degree to which a model and its associated data are an accurate representation of the *real world* from

UNCLASSIFIED

the perspective of the intended uses of the model. Validation answers the question, "Did I build the right thing?"

Accreditation: the official certification (by the user) that a model, simulation, or federation of models and simulations and its associated data are acceptable for use for a specific purpose. Accreditation answers the question, "Does it suit my needs?"

The JSSEO Technical Report on M&S VV&A (2003-006) discusses how JSSEO is charged with providing recommendations to decision authorities in the Office of Secretary of Defense (OSD) and Joint Staff on how to achieve SIAP-related requirements across all Services and Agencies. These recommendations must be reviewed by the affected Services and Agencies in order to achieve consensus on their implementation.

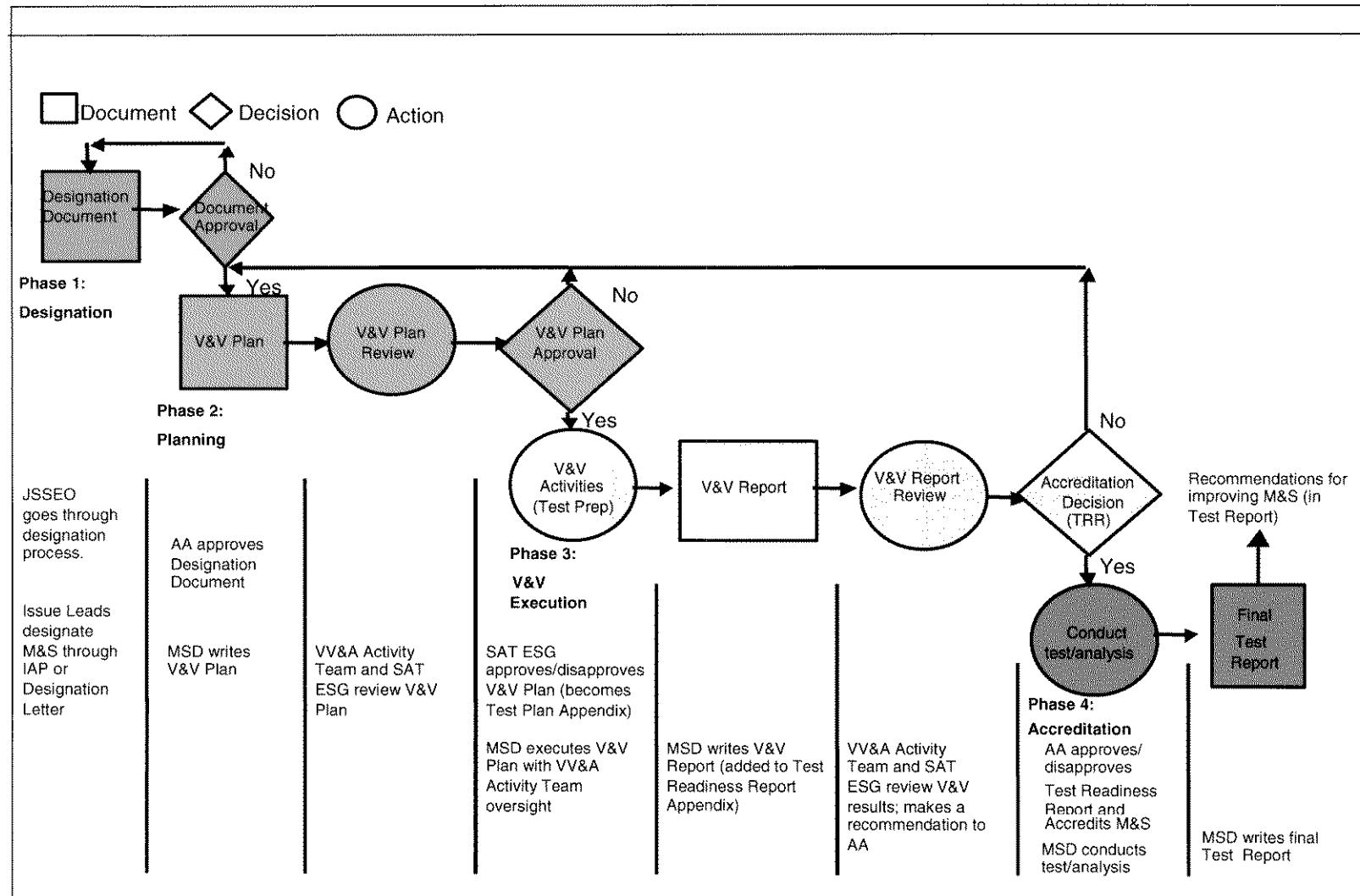
An accreditation decision is ultimately part of the overall risk assessment and analysis process used by JSSEO. The V&V activities supporting the accreditation decision help answer the questions: *what is the likelihood (risk) that the data resulting from an M&S based analysis does not reflect real-world systems or conditions, and what is the impact to the analysis?* Therefore, the V&V activities should focus on assessing, to a high level of confidence, the suitability of M&S to produce the data necessary to meet a specified objective, in support of JSSEO decisions.

Describe how the test team will meet the VV&A needs.

Describe the VV&A process and procedures and the use of V&V Plans and V&V Reports.

Figure 2 shows the SIAP VV&A process. If the Test Readiness Report deviates from this process, provide a new process diagram.

UNCLASSIFIED



AA = Accreditation
 MSD = M&S Developer

Figure 2. JSSEO VV&A Process

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

4. TEST SCHEDULE

Present the overall testing schedule (Figure 3), in accordance with the project schedule. Show the schedule of events in list or timeline format (Gantt chart). Include pre- and post-test requirements.

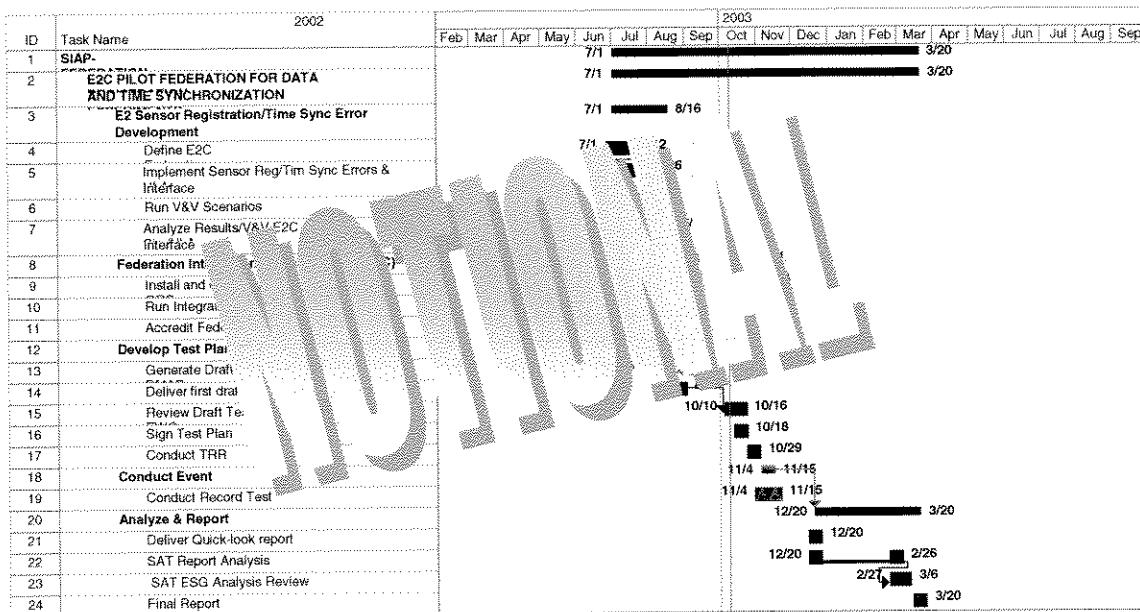


Figure 3. Notional Schedule

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

5. TEST MANAGEMENT AND ORGANIZATION

5.1 Roles and Responsibilities

Provide an organizational diagram for conducting the test. Figure 4 provides a notional organization of the event. The specific roles and responsibilities will be discussed for each organization.

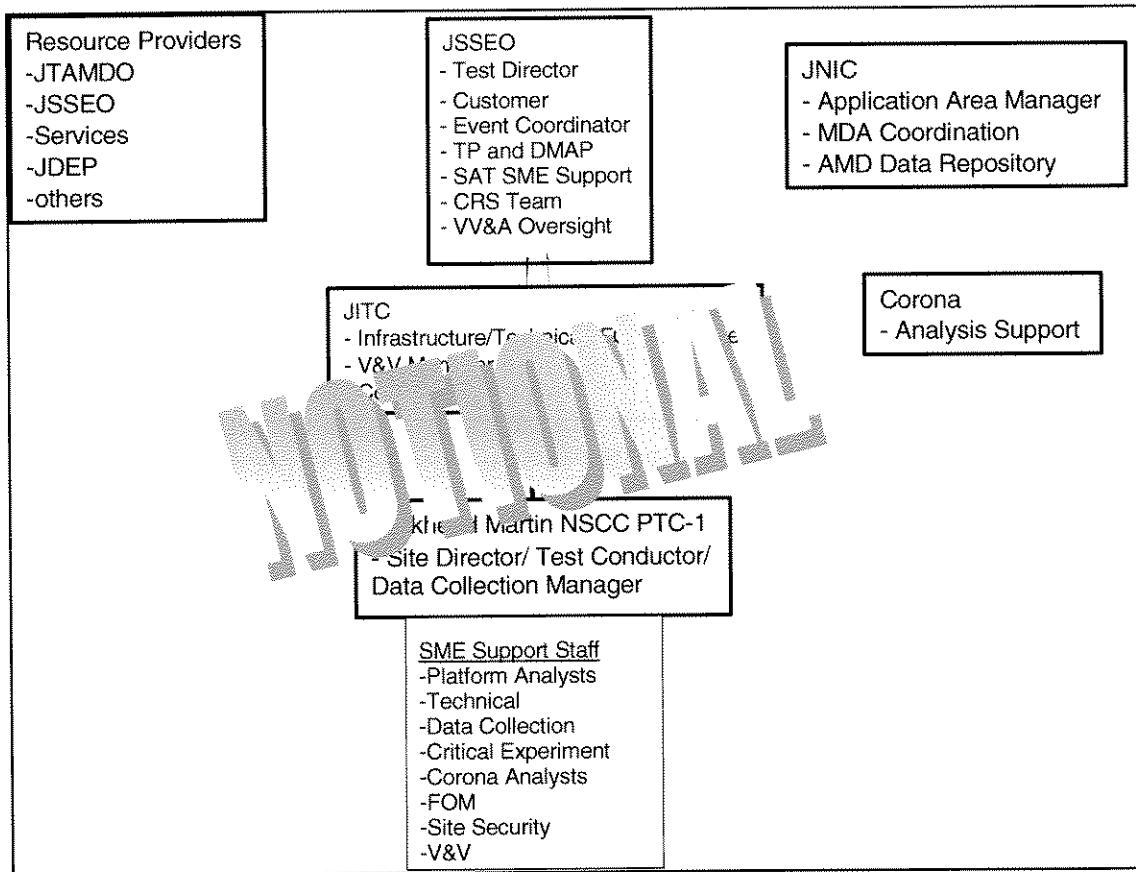


Figure 4. Notional organization of an event

5.1.1 Customer Name (e.g., JSSEO)

The customer is the primary user of the test results.

The customer:

- Has primary responsibility for marshalling funding resources
- Describes the expected level of support for the event
- Provides some resources for the event
- Coordinates the event

UNCLASSIFIED

- Oversees overall planning, conduct, and analysis of event
- Coordinates Test Plan and Test Readiness Report development and data management and analysis plan
- Provides guidance on critical experiments via subject matter experts
- Develops the CRS excursion
- Provides the V&V process
- Has final accreditation authority for the event.

5.1.2 Test Sponsor Name (e.g., Joint Theater Air and Missile Defense Organization (JTAMDO))

The Test Sponsor is a resource provider and endorses the scope and goals of a project and represents the test throughout the management process. The Test Sponsor exercises approval authority over Test Objectives/Plans/Results.

5.1.3 Application Area Manager (e.g., Joint National Integration Center (JNIC))

The JTAMD Application Area Manager provides technical environment support services, maintains visibility over a family of systems, and oversees test requirements.

The JTAMD Application Area Manager:

- Reviews, evaluates test objectives, plans, analyses, and reports
- Participates in event planning, execution, data collection, and analysis
- Provides insight for other test activities and applications to the broader testing community

5.1.4 Infrastructure/Technical Manager (e.g., Joint Interoperability Command (JITC))

The Infrastructure/Technical Manager is responsible for developing the federation.

The Infrastructure/Technical Manager:

- Develops and executes a V&V plan for the Utility Player.
- Is the Configuration Manager with the responsibility for ensuring that the FOM is configured properly and computer program versions used are documented
- Coordinates and maintains the Federation Agreements and coordinates FOM changes

UNCLASSIFIED

- Will provide technical assistance, if requested, to issues involving HLA federate design or the RTI.

5.1.5 Participating Service(s) (e.g., Lower Tier Project Office/Software Engineering Directorate (LTPO/SED))

Identify the participating Service(s) for this event.

Participating Services will:

- Develop test procedures for conducting experiments
- Conduct V&V of their federate components in the test
- Execute test runs
- Provide Subject Matter Experts to ensure test objectives are properly addressed.

5.1.6 Supporting Agencies (e.g., Naval Surface Warfare Center (NSWC) Corona)

Identify roles and responsibilities for Supporting Agencies.

Supporting Agencies:

- Ensure that the test(s) accurately capture program attributes
- Provide on-site analysis, as necessary

5.1.7 SIAP Analysis Team (SAT): Executive Steering Group (ESG) and Other Test Representatives

Identify the SAT ESG members associated with the subject test and their intended roles and responsibilities. It should include statements regarding whether the SAT ESG is expected to provide the resources necessary to plan, execute and analyze an event. It is the responsibility of SAT members to ensure the right tools are brought to collect necessary data and perform on-site analysis.

5.1.8 JSSEO Common Reference Scenarios (CRS) Team

Identify the CRS team that will be responsible for developing CRS excursions that reflect the needs of the event.

The SIAP CRS Team will:

- Develop the scenario with elements and formats consistent with the FOM
- Ensure the scenario contains the appropriate requisites to conduct experiments

UNCLASSIFIED

- Provide data required to conduct test.

5.2 On-Site Organization

Clearly outline the management roles of on-site activity. Identify one overall leader and assistant managers (one for SAT, one for critical experiments and may need one for another area of testing).

Roles for SAT include developing Distinguished Visitors (DV) storyboards before heading on-site. Members of the SAT should be prepared to discuss mission monitoring of the display tools to any of the Distinguished Visitors (DV).

6. TEST READINESS REVIEW PREPARATIONS

The purpose of the Test Readiness Review is to present results and status of the preparations for the test to the accreditation authority or leadership (whichever the case) to enable a decision to be reached to proceed with the test. Test Readiness Report approval is the desired outcome of the Test Readiness Review. The Test Readiness Review should have the following information included for discussion:

1. System test status and checkout performance
2. FOM status (M&S venues)
3. Equipment and computer program configuration
4. Test objective(s) and procedure review
5. Test coordination
6. Security
7. Success criteria
8. Go/No-Go criteria
9. Real-time data requirements to include format, algorithms, and data definitions
10. Quick-look data requirements to include format, algorithms, and data definitions (if available)
11. Final data requirements to include format, algorithms, and data definitions
12. Recommendation for accreditation of federation (M&S venues)
13. Recommendation to proceed with the test.

6.1 Tasks Accomplished

The Test Readiness Review should include results from dry-run testing, including the data required to justify V&V results (M&S venues).

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

7. TEST EXECUTION

7.1 Pre-Test Briefing

The purpose of the Pre-Test briefing is to ensure that all participants understand the test procedures, their individual roles and responsibilities, and the test Go/No-Go criteria. The Pre-Test briefing is delivered by the Test Conductor and takes place every day prior to starting test runs. All members of the test team, including test component operators as well as any on-site test support staff, should be in attendance. The attendees make a recommendation to the Test Conductor on whether Go/No-Go criteria have been met, but the Test Director makes the final determination. The pre-test brief should have the following information included for discussion:

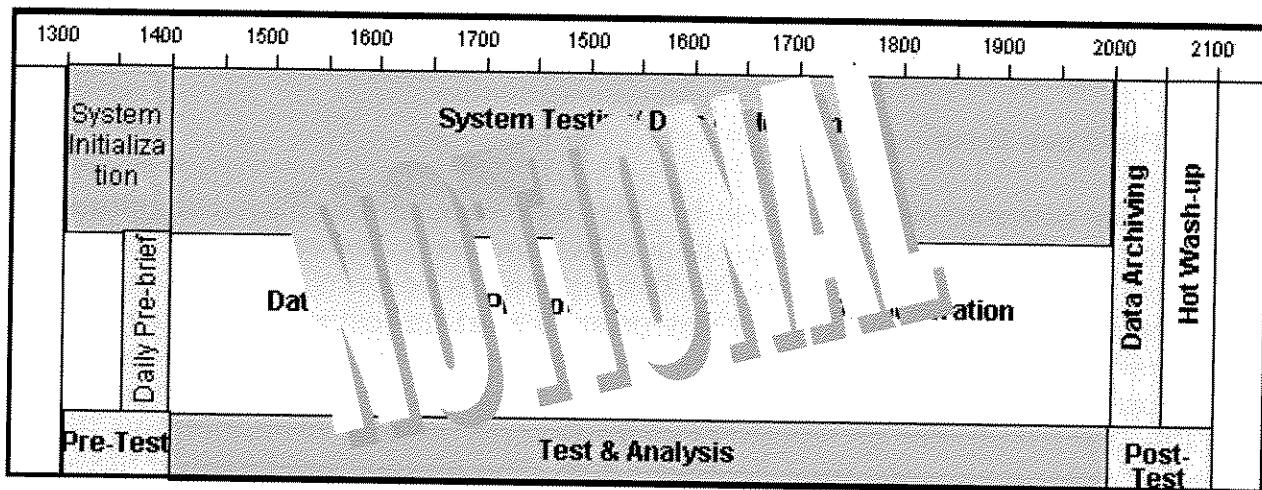
- System test status and checkout performance
- FOM status (M&S venues)
- Equipment and computer program configuration
- Test objective and procedure review
- Test coordination
- Security
- Success criteria
- Go/No-Go criteria
- Real-time data requirements to include format, algorithms, and data definitions.
- Quick-look data requirements to include format, algorithms, and data definitions
- Final data requirements to include format, algorithms, and data definitions

7.2 Test Execution and Data Collection

Provide any instructions about executing the test such as following the test procedures and run matrix described in the appendices. Describe any special data collection tools or activities required for the test.

7.3 Daily Test Schedule

Provide a daily test schedule (Figure 5).



8. TEST REPORTING

8.1 Quick-Look Report

Identify the organization(s) responsible for producing and/or reviewing the quick look report and the timeline by which the report will be submitted. Also, identify topics that should be covered. Topics the Quick-Look will cover include: "Evaluation of findings from a management perspective, significant test results, and preliminary conclusions."

8.2 Technical Report Outline

In this section, identify organization(s) responsible for producing and/or reviewing the final report. Set the timeline for submission. Establish the coordination process, through final approval authority. State expected format for the final report. For example: "A technical report will be generated within 90 days following the E-2C JDEP event. Generating the report will be a collaborative effort. Final signature will be provided by JSSEO, JTAMDO, JNIC, JITC, and E-2C."

The final report will include a description of the experiment as it was actually conducted (parametric runs) with enough detail such that the test can be repeated, a summary of the SIAP attributes results, discussion of the results including root cause, and recommendations for improvement. A typical technical report for an event will have the outline shown in Table 1.

Table 1. Standard Results Technical Report Outline

EXECUTIVE SUMMARY
INTRODUCTION
Purpose/Intent
Background
Overall Test Objectives
Assessment Constraints and Limitations
ASSESSMENT RESULTS AND ANALYSIS
General
Analysis Objectives
Objective 1.
Objective 2.
Objective 3.
Analysis Products
On-site Activity
On-Site Objectives
Organizational Analysis Support
Approach/Methodology

UNCLASSIFIED

Data Collection
Test Procedures
Test Observation Report (TOR) Process
Data Availability Matrix
Results
Post-Event Analysis
Post-Event Objectives
Approach/Methodology
TSPI Discussion
Track Matching Process
PET Description and Processing
Prioritized TORs and Events of Interest (EOIs)
Critical Experiments
Additional Analytical Issues
LESSONS LEARNED
CONCLUSIONS AND RECOMMENDATIONS
REFERENCES
APPENDICES: ACRONYMS, FORMAL ANALYSIS REPORTS,
INSTRUMENTATION, EXTENSIVE DATA (TABLES), MATHEMATICAL METHODS
POINTS OF CONTACT

Table 2 gives the schedule for the reporting process.

Table 2. Notional Reporting Timeline

Description	Responsible Party(ies)	Date
Quick-look report	Insert OPR: (e.g., ESTEL/Corona)	30 days
Review of Final Results	Insert OPR: (e.g., SAT: JDEP representatives)	45 days
Review and comment	Insert OPR: (e.g., JDEP Project Lead, ESG)	60 days
Final Technical Report signed	Insert OPR: (e.g., SIAP, JTAMDO, JNIC, JITC, and E-2C)	90 days

8.2.1 Summary and Lessons Learned

Identify lessons learned from the event, including issues with logistics, planning, execution, and analysis. Indicate how and by whom relevant TORs will be reviewed for candidacy into the SIAP Lessons Learned Knowledge Base (LLKB). Lessons Learned in the LLKB are generally separated into two categories, operational lessons and programmatic lessons. Operational lessons encompass any observed interoperability issues or events of interest noted while running the test. Programmatic lessons include any issues that deal with the planning, management and coordination of executing the test.

8.2.2 Unresolved Issues

Analysis results will be documented in the final report in the context that the issue is either understood and recommendation is provided, the issue is not understood and needs additional time and resources to isolate, or that the issue is not problematic and is dropped.

Indicate how issues requiring additional time will be addressed and how the responsible parties will resolve them.

Interoperability issues will be discussed via phone, e-mail, or secure telephone unit (STU). The objective will be to isolate interoperability issues as far as possible in a distributed environment so as to avoid lengthy periods of co-located analysis.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

9. REFERENCES

List all relevant references to the document.

Theater Air and Missile Defense Capstone Requirements Document (TAMD CRD). (2001, March). U.S. Joint Forces Command.

Combat Identification Capstone Requirements Document (CID CRD), (2001) U.S. Joint Forces Command.

SIAP SE TF Technical Report 2003-029: Single Integrated Air Picture (SIAP) Attributes Version 2.0, (2003, August). Arlington, VA: JSSEO.

SIAP SE TF Technical Report 2001-003: Single Integrated Air Picture (SIAP) Metrics Implementation, (2001, October). Arlington, VA: JSSEO.

SIAP Standard Data Management and Analysis Plan, Version 1.1, (2002, July). Arlington, VA: JSSEO.

SIAP Common Reference Scenario Technical Report, Version 1.1, (2002, July). Arlington, VA: JSSEO.

SIAP SE TF Technical Report 2003-006: Single Integrated Air Picture (SIAP) Verification, Validation, and Accreditation Guide for Models and Simulations. (2003, April). Arlington, VA: JSSEO.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

APPENDIX A: ACRONYMS

List all acronyms in the document. A set of frequently used acronyms is provided here and should be tailored for the Test Readiness Report.

A	Ambiguity
AA	Accreditation Authority
ABT	Air-Breathing Threat
ACM/ACS	Automatic Channel Monitoring/Automatic Channel Select
AEW	Airborne Early Warning
AGC	Automatic Gain Control
ARCTIC	Automated Reconstruction and Correlation Tool for Interoperability Characterization
ASCII	American Standard Code For Information Interchange
C	Completeness (SIAP attribute)
CCD	Common Carrier Device
CD	Compact Disk
CEC	Cooperative Engagement Capability
CID CRD	Combat Identification Capstone Requirements Document
CNA	Center for Naval Analyses
COTS	Commercial off the Shelf
CRD	Capstone Requirements Document
CRS	Common Reference Scenario
CRSD	Common Reference Scenario Driver
DDM	Data Distribution Manager
DEP	Distributed Engineering Plant
DIS	Distributed Interactive Simulation
DISN	Defense Information Services Network
DM	Data Manager
DMAP	Data Management and Analysis Plan
DoDI	Department of Defense Instruction
DPCA	Displaced Phase Center Array
DPG	Defense Planning Guidance
DR	Data Recording/Data Reduction
DX	Data Extraction
DX/DR	Data Extraction/Data Recording
ESC/AW	Electronic Systems Center (previously referred to as MASC)
ESG	Executive Steering Group
ESTEL	E-2C Systems Test and Evaluation Laboratory
FOM	Federation Object Model
FoS	Family of Systems

UNCLASSIFIED

FTP	File Transfer Protocol
GII	Group II
GPS	Global Positioning System
GRU	Gridlock Reference Unit
GTE	Gateway Terminal Emulator
HLA	High-Level Architecture
HWIL	Hardware in the Loop
IADS	Integrated Air Defense System
IAW	In Accordance With
ICC	Information and Coordination Central
ICD	Interface Control Document
ID	Identification
IFF	Identification Friend or Foe
JCoCaC	Joint Council of Colonels and Captains
JDEP	Joint Distributed Engineering Plant
JIADS	Joint Integrated Air Defense System
JITC	Joint Interoperability Test Command
JNIC	Joint National Interoperability Center
JSSEO	Joint Single Integrated Air Picture System Engineering Organization
JTAMDO	Joint Air and Missile Defense Organization
JTIDS	Joint Tactical Information Distribution System
KPP	Key Performance Parameter
M&S	Modeling and Simulation
MDA	Missile Defense Association
MIL-STD	Military Standard
MOE	Measure of Effectiveness
MOP	Measure of Performance
MS	Microsoft
MSD	Modeling and Simulation Developer
NAVAIR	Navy Air
NSWC	Naval Surface Warfare Center
OSD	Office of the Secretary of Defense
PC	Personal Computer
PET	Performance Evaluation Tool
PO	Program Office

UNCLASSIFIED

POC	Point of Contact
PPLI	Precise Participant Location and Identification
PU	Participating Unit
R2	Reporting Responsibility
RISS	Radar IFF Simulation System
RTI	Runtime Infrastructure
SAT	Single Integrated Air Picture Analysis Team
SE	System Engineer
SIAP	Single Integrated Air Picture
SIF	Selective Identification Feature
Sim/Stim	Simulation/Stimulation
SIPRNet	Secret Internet Protocol Router Network
SME	Subject Matter Expert
SoS	System of Systems
SPC	Special Programs Center
SWIL	Software in the Loop
STU	Secure Telephone Unit
TACCAR	Time Averaged Clutter Coherent Airborne Radar
TADIL	Tactical Digital Information Link
TAMD	Theater Air and Missile Defense
TAMD CRD	Theater Air and Missile Defense Capstone Requirements Document
TD	Test Director or Tactical Driver
TDDS	TRAP Data Dissemination System
TF	Task Force
TIAC	Theater Air and Missile Defense Interoperability Assessment Capability
TIBS	Tactical Information Broadcast System
TIM	Terminal Input Message
TO	Test Objective
TOM	Terminal Output Message
TOR	Test Observation Report
TPWG	Test Plan Working Group
TQ	Track Quality
TRAP	Tactical Related Applications
TSIU	Tactical System Interface Unit
VV&A	Verification, Validation, and Accreditation
WAM	Warfare Assessment Model
WG	Working Group
WST	Weapons Systems Trainer

UNCLASSIFIED

2D 2 Dimensional
3D 3 Dimensional

UNCLASSIFIED

APPENDIX B: SIAP METRICS

JSSEO developed a set of attributes (JSSEO Technical Report 2003-029) derived from TAMD and CID CRD key performance parameters. The Test Readiness Report should describe in this appendix any information that impacts the calculation of the SIAP attributes and any measures of performance. All JSSEO tests should include a SIAP attributes calculation. Any caveats, limitations, or changes from the ordinary to compute them should be mentioned here. For reference, the qualitative definitions of the SIAP attributes are provided as follows:

Completeness: The measure of the portion of true air objects that are included in the SIAP. The air picture is complete when all objects are detected, tracked and reported.

Clarity: The measure of the portion of the SIAP that contains ambiguous tracks and/or spurious tracks. The air picture is clear when it does not include ambiguous or spurious tracks.

Continuity: The measure of how accurately the SIAP maintains track numbers over time. The air picture is continuous when the track number assigned to an object does not change.

Kinematic Accuracy: The measure of how accurately the TAMD Family of Systems (FoS) reports track position and velocity. The air picture is kinematically accurate when the position and velocity of each assigned track agree with the position and velocity of the associated object.

ID Completeness: The measure of the portion of tracked objects that are in an identified state. The ID is complete when all tracked objects are in an identified state.

ID Correctness: The measure of the portion of tracked objects that are in the correct ID state. The ID is correct when all tracked objects are in the correct ID state.

ID Clarity: The measure of the portion of tracked objects that are unambiguously identified. The ID is clear if no tracked object is in the ambiguous ID state.

Commonality: The measure of consistency of the air picture held by TAMD FoS participants. The air picture is common when the assigned tracks held by each participant have the same track number, position, and ID.

UNCLASSIFIED

The actual attribute computations will be automated through the use of the Performance Evaluation Tool (PET), into which the algorithms for the SIAP attributes have been encoded.

APPENDIX C: FEDERATION DEVELOPMENT PROCESS (M&S VENUES)

The development of the federation designed to support this test follows the seven-step FEDEP process, which is now an IEEE standard process. This process provides the framework for the action plan and development schedule (Figure C-1). The steps in this process are shown in Figure C-1.

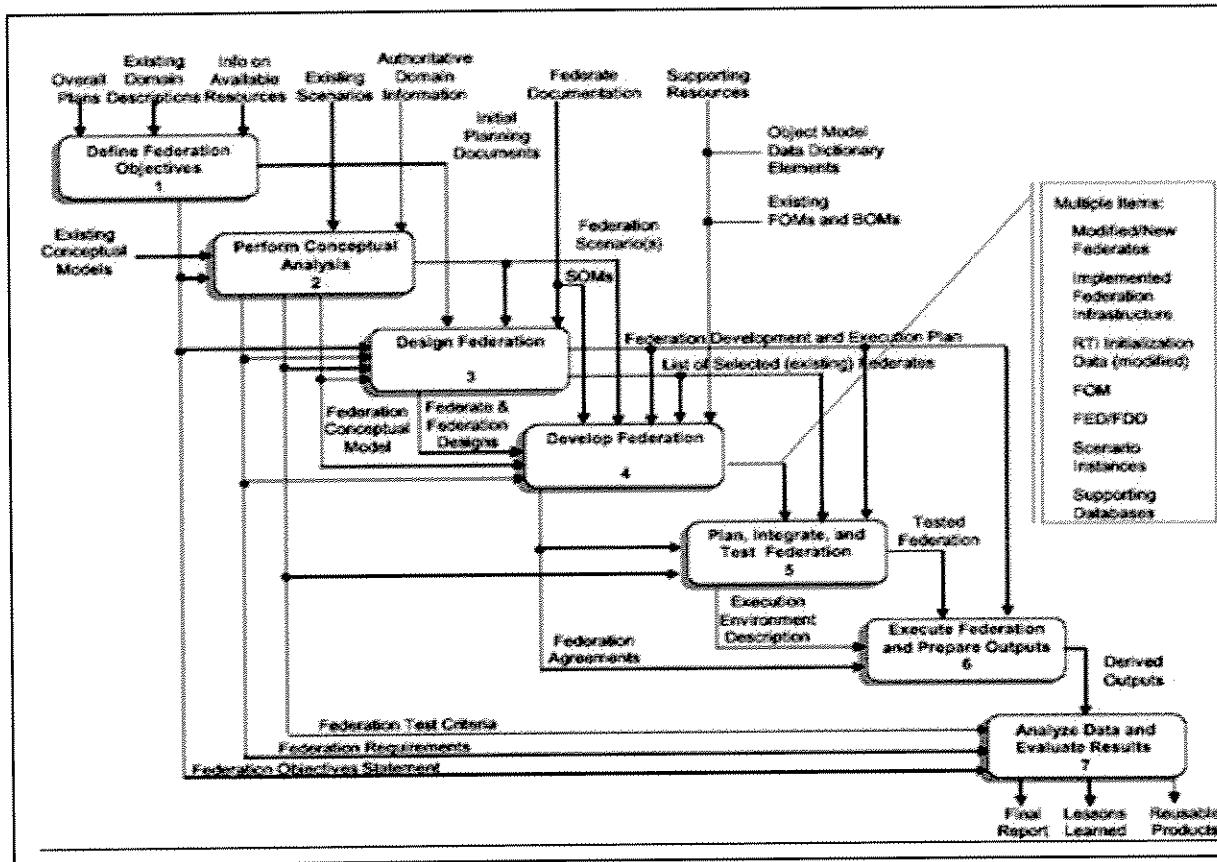


Figure C-1. Federation development and execution process

Step 1. Define Federation Objectives

The first step of this process is to clearly define the federation objectives. This is key because all subsequent steps build on the objectives.

Step 2. Perform Conceptual Analysis

The next step is to define characteristics of federates and the federation needed to address issues. The federation requirements drive the selection of federates and the VV&A of the federation. This step requires active participation of the subject matter experts and the system owners/proponents

because it is dependent on a sound understanding of the problem area, the substantive issues to be addressed in the test, and requirements for selection of the representations to meet the needs of the test.

Step 3. Design Federation

The next step is to identify specific federates, develop the Federation Object Model (FOM) for the federation, define federation CONOPS, and delineate federate upgrades to support the federation. The federation design reflects the decision of how to satisfy the federation requirements with specific federates, scenarios and data exchanges. At this stage it is almost always necessary to return to steps 1 and 2. It may be necessary to review the objectives for clarity and return to the conceptual analysis with more detail to ensure the requirements for the federation are well articulated and understood, and that the federation can be designed to meet the needs of the user.

Step 4. Develop Federation

Next, federate owners implement support for the FOM and enhancements in federates as needed and test individual federates.

Step 5. Plan, Integrate, and Test Federation

Incremental testing of federation capabilities and sets of federates is completed to prepare for the federation execution to support the test.

Step 6. Execute Federation and Prepare Outputs

The test is then conducted using the federation following the test process and procedures.

Step 7. Analyze Data and Evaluate Results

The final step is to conduct the data analysis, evaluate results, and produce the final report.

UNCLASSIFIED

APPENDIX D: VALIDATION AND VERIFICATION (V&V) PLANS (M&S VENUES)

As described in Section 2.3, the VV&A process includes development of a V&V plan for the federates and the federation itself. Table D-1 identifies those federates requiring a V&V plan and the corresponding lead for each plan. Table D-2 gives a schedule of the VV&A process for this test.

Table D-1 Federates Requiring V&V Plan

Federate requiring V&V Plan	Responsible Party(ies)	
	Primary	Secondary
Overall Federation		
<ul style="list-style-type: none"> - Utility Player - PATRIOT Sim Interface - CRS-D - Tools (TIAC, CEEES, TACO) 		Secondary Responsible Party
Utility Player	Primary Responsible Party	Secondary Responsible Party
<ul style="list-style-type: none"> - GTE 1553 - DLS - TIAC/HLA 		
PATRIOT Sim Interface	Primary Responsible Party	Secondary Responsible Party
<ul style="list-style-type: none"> - GTE X.25 - FMS-D 		
CRS-D	Primary Responsible Party	Secondary Responsible Party
<ul style="list-style-type: none"> - CRS 		

Table D-2 V&V Schedule

Date	Action
10 Mar 03	All V&V plans delivered to M&S lead
10-14 Mar 03	V&V Activity team* review of V&V recommendations to M&S lead.
19 Mar 03	Status update on V&V reports.
7 Apr 03	Telecon follows up with M&S lead to provide recommendations to V&V report. M&S lead provides final approval or disapproval of plans.
9 Apr 03	Test Readiness Review and accreditation.

*V&V Action team: The VV&A Action Team is an ad hoc team of SMEs, Model/Tool developers/experts, Service representatives and other specialists. It will normally be established as part of the Test Plan Working Group. Provide team members and representatives from each organization and identify their associated organizations.

UNCLASSIFIED

The outline of the V&V Plan is specified in TR 2003-006, and is included below.

- 1) M&S Requirements and Acceptance criteria. To determine the M&S requirements, a good understanding of the objectives and hypotheses is necessary.
- 2) Capabilities/Limitations/Assumptions
- 3) V&V Methods
- 4) Data Certification
- 5) M&S Development Methodology
- 6) Configuration Management Plan

As each V&V plan gets executed, the lead will indicate on the checklist of Table D-3 the V&V completion date and initial next to it. This checklist should be completed and provided at the Test Readiness Review.

Table D-3. V&V Checklist

Federate	Lead	V&V Completion Date	Initial
Utility Player	Responsible Party		
PATRIOT Sim/Stim	Responsible Party		
CRS Driver	Responsible Party		
Overall Federation	Responsible Party		

UNCLASSIFIED

APPENDIX E: VALIDATION AND VERIFICATION (V&V) REPORTS (M&S VENUES)

The V&V Reports shall be included here as an appendix. The V&V Report documents the execution of the V&V Plan.

Recommended outline:

1. V&V Report

 1.1 Test objectives

 1.2 Accreditation Goals

 1.3 Accreditation process (Reference Accreditation Data from V&V runs and section 3 comparison table, and section 4 list of working group members.

2. V&V Assessment Report

 2.1 Summary of Capabilities and Limitations (Based on V&V results and Differences Table in Section 3.

3. Table

Requirements	Acceptance Criteria	V&V Plan Test Result	Difference between Acceptance	Criteria and V&V Plan Test Results

4. SME POC information (Test Plan Working Group)

5. Recommendation to use or not to use federate in proposed test.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX F: TEST CONFIGURATION**Test Description**

Provide a brief test description that includes what the test entails.

For example, "The E-2C pilot event will test the simulation and stimulation of the E-2C as biases are introduced into its sensor, which, in this case, is its mission computer."

NetworksInternal Network

Provide a description of the internal network for the test setup.

For example, "The internal ESTEL network connections are shown in Figure F-1."

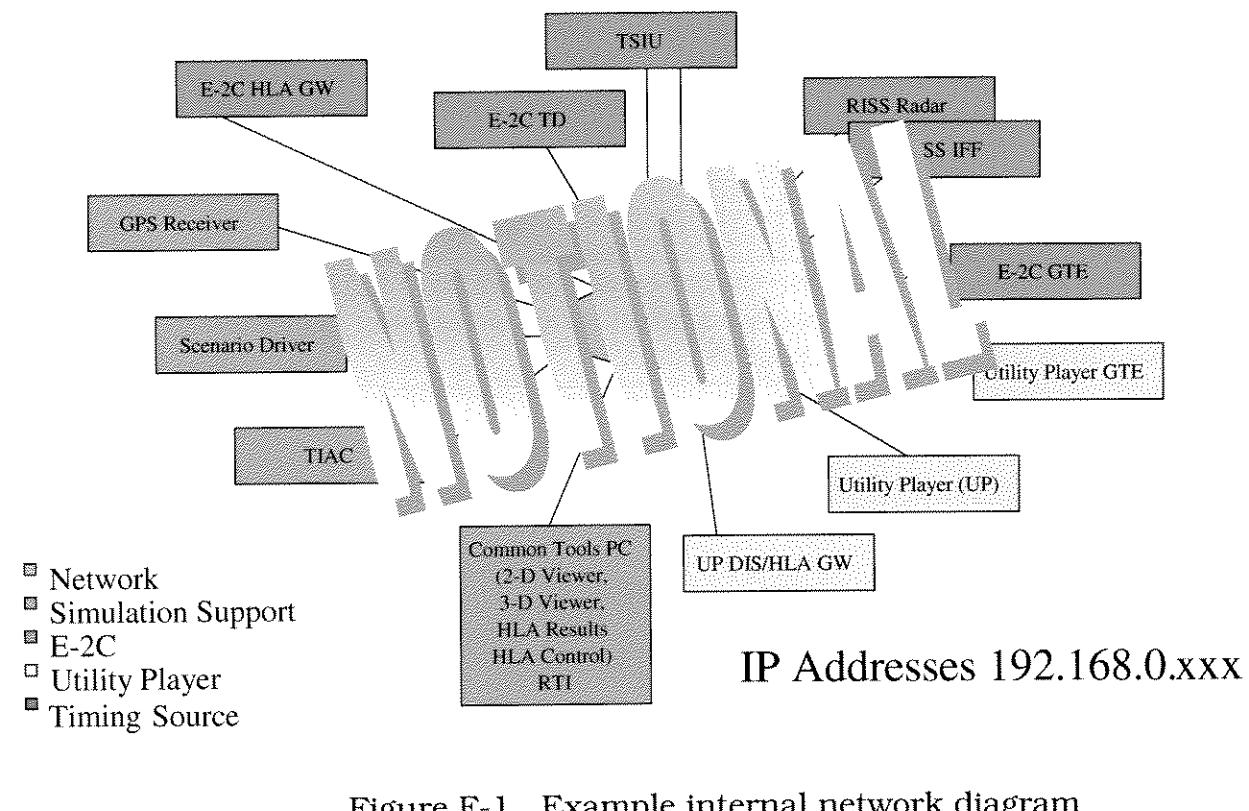


Figure F-1. Example internal network diagram

External Network

Provide a description of external network (connectivity, tools, etc).

Security

Identify the classification levels for the testing facility, systems, and data produced during test. Also identify the security point of contact for the event and provide voice and e-mail contact information.

"For all systems coming into the E-2C Systems Test and Evaluation Laboratory (ESTEL), the following items must be submitted two weeks prior to the install/integration date."

Test Facilities

Provide details about the test facility (i.e., background, location, etc.), the organizational structure, the facility function and the facility mission.

For example, "ESTEL provides comprehensive test and evaluation of Airborne Early Warning (AEW) mission systems. ESTEL personnel comprise two distinct groups."

HWIL/M&S Setup

Provide a detailed description of the test setup.

For example, "The Lab is composed of two tactical benches each supported by a mission system simulation suite, a mission playback system, and data reduction and analysis systems."

UNCLASSIFIED

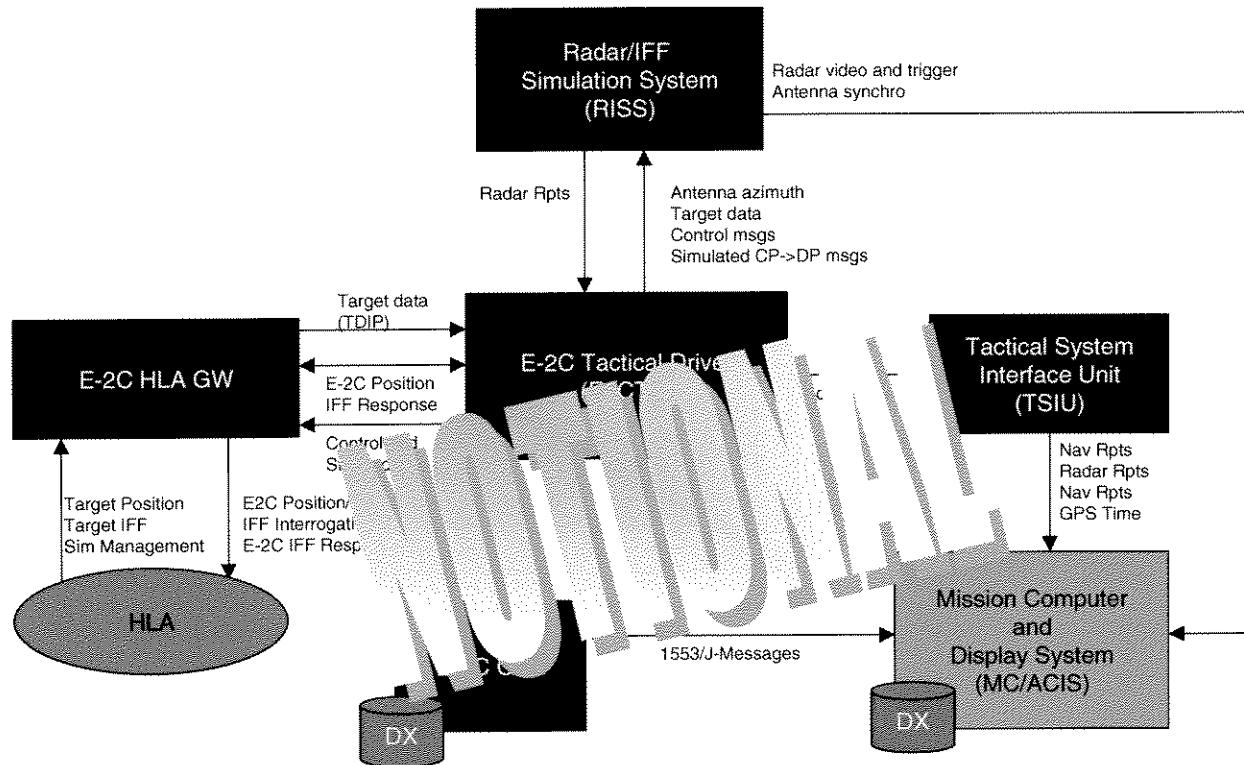


Figure F-2. Example simulation suite data flow diagram

Provide further details about the test facility, including connectivity/data link capabilities, processing elements, and associated parameters.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX G: DETAILED SCENARIO DESCRIPTION

General

Provide details about the excursion scenario selection for the test.

For example, "The excursion scenario is derived from the SIAP Common Reference Scenario (CRS) NEA III 2003 V2.0 scenario vignette. This scenario is 30 minutes long, taken from 21:17-21:24 Zulu."

Excursion Scenario Selection

Discuss planning efforts that ensure the SIAP CRS elements meet the needs of the testing federate.

For example, "The SIAP CRS team met with members of the E-2C testing team through JDEP Test Plan Working Group meetings and teleconferences to verify the requirements for the excursion scenario to meet test objectives. As a result, a 30-minute window was extracted from the CRS NEA III 2003 V2.0 scenario vignette as the proposed excursion (CRS JDEP E-2C Excursion V1.2) to support this event. The selected excursion scenario was presented to and accepted by the E-2C testing team. The following sections describe the agreed-upon characteristics of the scenario and the E-2C-specified requirements that the scenario should provide."

Characteristics

Provide the scenario characteristics. For example,

- Earth-Centered Inertial (ECI) coordinate frame
- 10Hz update rate
- 3 degrees of freedom with orientation
- WGS 84 J4 Oblate earth model
- DTED included
- EADSIM implementation files provided

For example, "The CRS excursion offers a target-rich environment (both Red and Blue) for the purposes of examining SIAP issues and concerns. Although the scenario is not tactically correct, it meets the requirements of the test objectives of this event."

Threat Order of Battle

Provide a brief description of the threat order of battle.

UNCLASSIFIED

Friendly Order of Battle

Provide a brief description of the friendly order of battle.

Scenario Requirements (Criteria)

Provide the scenario requirements that meet the needs of the critical experiments as well as the needs of the system being tested.

For example, "The scenario requirements for conducting the SIAP E-2C HWIL JDEP event include:

- Operationally credible simulation environment
- Sufficient threat aircraft in E-2C coverage area"

UNCLASSIFIED

APPENDIX H: DETAILED TEST PROCEDURES

This appendix contains the run matrix (for simulation tests) and detailed test procedures for the event. The run matrix is provided in Table H-1. If an alternative test matrix is devised, provide in Table H-2 and indicate under what conditions the alternative run matrix will be run (e.g., if time permits and the testing facility can meet the parameter sets).

Run Matrix

Table H-1. Run Matrix

Run	Test Objective	Parameter Being Set	Value	Responsible Party
1	Establish E-2C baseline performance for Time Synch., Navigation & Sensor Registration. The E-2C shall operate using standard operating procedures.	Verify data extraction "DX" for CTR, NAV and DR analysis under normal procedures with nominal bias.		
2	Establish E-2C baseline performance for Time Synch., Navigation & Sensor Registration. The E-2C shall operate using standard operating procedures.	Insert a time delta between the Utility player and E-2C mission computers.		
3	Determine whether a time delta between Link-16 participants impacts either the weapon system or SIAP performance.	Insert a time delta between the Utility player and E-2C mission computers. Recommended time delta is 1 hr., 37 min., 22 sec. with E-2C leading.		
4	Determine whether a time delta between Link-16 participants impacts either the weapon system or SIAP performance.	Insert a time delta between the Utility player and E-2C mission computers. Recommended time delta is 1 hr., 37 min., 22 sec. with E-2C lagging.		

UNCLASSIFIED

5 thru TBD	Parametric analysis of Azimuth/Yaw bias.	Insert a (+/-) AZ bias keeping all other biases constant. Adjust (+/-) AZ bias, as required, to determine the level of bias that impacts E-2C mission and/or the SIAP attributes. Note: It is estimated that it will require a total of 5 to 7 runs to determine the bias "Knee in the curve".		
6 thru TBD	Parametric analysis of Geodetic Registration impact upon Sensor Registration North biases	OSRP latitude position. Insert a geodetic latitude error for each subsequent run until the maximum uncorrectable bias offset has been determined. Example: Increase the position bias offset from truth in a logical methodology as; 100 m, 300 m, 1000 m, 10000 m, and 30000 meters.		
7 thru TBD	Parametric analysis of Geodetic Registration impact upon Sensor Registration East biases. Note: This series of runs might not be required if the SIAP attributes equally impacted by error regardless of the x and y bias sign (+/-).	OSRP longitude position. Insert a geodetic longitude error for each subsequent run until the maximum uncorrectable bias offset has been determined. Example: Increase the position bias offset from truth in a logical methodology as; 100 m, 300 m, 1000 m, 10000 m, and 30000 meters.		
8 thru TBD	Parametric analysis of Range bias.	Insert a (+/-) Range bias keeping all other biases constant. Note: It is estimated that it will require a total of 5 to 7 runs to determine the bias "Knee in the curve".		
9 thru TBD	Parametric analysis of Range Rate bias.	Insert a (+/-) Range Rate bias keeping all other biases constant. Note: It is estimated that it will require a total of 5 to 7 runs to determine the bias "Knee in the curve".		

UNCLASSIFIED

Table H-2 Alternative Run Matrix

Run	Test Objective	Parameter Being Set	Value	Responsible Party
3A	Determine whether a time delta between the E-2C network radio (JTIDS terminal) and the mission computer impacts either the weapon system or SIAP performance.	Insert a time delta between the E-2C network radio (JTIDS terminal) and the mission computer. The JTIDS terminal shall be synched to GPS and the mission computer shall use a false local time with a delta of 1 hr., 37 min., 22 sec. with JTIDS terminal (GPS) leading.		
3B	Determine whether a time delta between the E-2C network radio (JTIDS terminal) and the mission computer impacts either the weapon system or SIAP performance.	Insert a time delta between the E-2C network radio (JTIDS terminal) and the mission computer. The JTIDS terminal shall be synched to GPS and the mission computer shall use a false local time with a delta of 1 hr., 37 min., 22 sec. with JTIDS terminal (GPS) lagging.		
3C	Time Synch. If a 10 sec. time delta impacts E-2C operations perform a dynamic parametric run varying the time delta in the following increments every 5 minutes.	Increase the time delta every 5 min. between the E-2C network (JTIDS) NTR and the mission computer clock in the following increments; 1 ms, 3 ms, 10 ms, 100 ms, and 300 ms.		
3D	Time Synch. E-2C is the master clock reference for the network radio using GPS time.	JTIDS Terminal: NTR GPS time (Enabled); Host System: GPS time (Enabled)		
3E	Time Synch. E-2C network radio is slaved to a NTR. The remote NTR is slaved to GPS as is the E-2C host system	JTIDS Terminal: Slaved GPS time (Remote); Host System: GPS time (Enabled)		

UNCLASSIFIED

3F	Time Synch. E-2C network radio is slaved to a NTR. The NTR is using a relative time reference while the E-2C host system uses GPS time	JTIDS Terminal: Slaved Relative time (Remote), Host System: GPS time (Enabled)		
3G	Time Synch. E-2C network radio is slaved to a NTR. The NTR is using a relative time reference while the E-2C host system uses its own relative time reference.	JTIDS Terminal: Slaved Relative time (Remote), Host System: Relative time (Enabled)		
6A	Nav. Reg. Operate E-2C use GPS as the only Navigation reference.	Use GPS reference		
6B	Nav. Reg. Operate E-2C use INS as the only Navigation reference.	Use INS reference		
6C	Nav. Reg. Operate E-2C using a blended "combined" GPS & INS Navigation reference.	Combined reference		

UNCLASSIFIED

Test Procedures

Provide the test procedures in Table H-3 and indicate whether these are the final procedure or whether they will be updated following the integration process.

Note: Having on-site procedures and log are useful to clarify the minimum data collection goals for critical experiments.

Table H-3. Test Procedures

Pre-Test Setup						
Seq. #	Sequence Function	Step		Action	Acceptance Criteria	Pass Fail
1	Setup MC to TSIU configuration	1		Configure the patch panel and cabling to connect the MC and TSIU/E-2CTD		
2	Boot host computers	2	a	TSIU bootable image host system.		
			b	RISS E-2CTD (3 hosts: E-2CTD, Radar & IFF)		
			c	Tactical System Interface		
			d	HLA I/O Configuration		
			e	ACIS Configuration		
			f	Power the MC bench		
3	Power up MC bench	3	a	Power up MC bench		
			b	ACIS Configuration		
			c	Power the MC bench		
			d	Power the MC bench		
			e	Select and boot the ACIS		
			f	Power the MC bench		
4	Start TSIU	4	a	Boot the TSIU and verify it is using the following configuration:		

UNCLASSIFIED

Pre-Test Setup

Seq. #	Sequence Function	Step		Action	Acceptance Criteria	Pass Fail
				<ul style="list-style-type: none"> - Simulation Mode - Nav Upgrade - RISS 		
5	Load RISS E-2CTD	5	a	<p>Start the RISS E-2CTD and verify the following configuration:</p> <ul style="list-style-type: none"> - RISS enabled - Radar in operate mode - Radar channel 5 - Transmitter power = 100% - PD = 100% - Antenna speed = 6 RPM - TACCAR enabled - DPCA enabled - ECCM enabled - Gaming area = S - ECCM 		
6	Start Link 16 GTE	6	a b c	<p>Start the Link 16 GTE and verify the following configuration:</p> <ul style="list-style-type: none"> - Connected to RISS E-2CTD - Using valid UTC time 		
7	Load HLA I/O GW	7	a	<p>Load the HLA I/O Gateway and verify it is connected to the following configuration:</p> <ul style="list-style-type: none"> - JDEP/SIAP FOM - Connected to RISS E-2CTD - Using valid UTC time 		
8	Load 2D Viewer			Load the 2D Viewer and select the JDEP/SIAP FOM.		
9	Initialize HLA DX			Load the hlaResults logging application with the JDEP/SIAP FOM		

UNCLASSIFIED

Pre-Test Setup						
Seq. #	Sequence Function	Step		Action	Acceptance Criteria	Pass Fail
10	Establish Voice Comms	1	a	Establish communications with TCC via selected comm. systems (ASTi or SphereCon)		

UNCLASSIFIED

Pre-Brief and Network Verification

Seq. #	Sequence Function	Step	Action		Acceptance Criteria	Pass Fail
1	RID File Check	1	a TCC reviews RID file for day's runs		Each federate ensures their RID file is correct for day's testing.	
2	IPMC Test	2	a TCC directs each federate to run IPMC Tester as sender, while all others receive		Each receiving federate receives all packets sent by sending federate.	
3	Time Synch Check	3	a TCC checks time synch		Time marks match TCCs (IRIG)	
4	Confirm Site Readiness	4	a TCC asks if any sites not up to date		Each federate verifies capability changes	
5	Scenario Readiness Verification	5	a TCC runs scenario verification		??? verifies scenario readiness status.	
6	Confirm TCC Setup	6	a TCC runs configuration verification		TCC version is noted	
7	Confirm Site Configurations	7	a TCC runs configuration verification		Verify all federate configurations from TCC lists	
8	L16 NTR Established	8	a	a TCC runs configuration verification		AEGIS verifies initiation of Link-16 as NTR
				b E-2C confirm in Link 16 in data silence ** IBAR verify in Link-16 in Data silence ** ACETEF verify in Link-16 in Data Silence ** only one ver. 8.4 GTE can be running at a time		E-2C confirms they are in Data Silence IBAR confirms they are in Data Silence ACETEF confirms they are in Data Silence ** only one ver. 8.4 GTE can be running at a time

UNCLASSIFIED

Federation Initialization

This section is an unknown at this point ... this needs to be updated with the actual steps to get the federation initialized – until we know what federation management tools and processes will be used can't begin to fill this in – it is left in our original format – just to indicate what previously was here.

Seq. #	Sequence Function	Step	Action	Acceptance Criteria	Pass Fail
1	Start Link-16 Loggers	1	a Verify Link 16 DX ready, recording trial # _____, with appropriate track quality	India Victor F14 E2 EGIS Suggested filename: Emmdd_tt)	
2	PPLI Entry	2	a	TCC verifies they are out of data silence	
			b	TCC verifies they have entered Link-16	
			c	India verifies Link-16 is active	
			d	Victor verifies Link-16 is active	
			e	India Victor F14 E2 AEGIS	
3	Join/ Health Check	3	a	TCC begins RTI exec. Joins HLAResults Joins HSD / TCF	RTI console list verifies join and HSD validates Health check. Trial # _____
			b	TCC directs 1 st federate to join	
			c	TCC directs 2 nd federate to join	
			d	TCC directs 3 rd federate to join	
			e	TCC directs 4 th federate to join	
			f	TCC directs 5 th federate to join	

UNCLASSIFIED

Federation Initialization

This section is an unknown at this point ... this needs to be updated with the actual steps to get the federation initialized – until we know what federation management tools and processes will be used can't begin to fill this in – it is left in our original format – just to indicate what previously was here.

Seq. #	Sequence Function	Step	Action	Acceptance Criteria	Pass Fail
		g	TCC directs 6 th federate to join		
		h	TCC directs 7 th federate to join		
		i	TCC directs 8 th federate to join		
		j	TCC directs 9 th federate to join		
		j	TCC directs Viewers to join		
4	Start Sequence	4	a TCC verifies MNS-1 is up	Alia and IBAR verify that MNS-1 link terminals are functional	
			b TCC directs 10 th federate to join	and Victor verify that aircraft have power and are flying	
			c TCC directs 11 th federate to join	11 th federate simulation begins running	
5	IFF Interrogation	5	a E-2C interrogates	Message is published by E-2C, as verified from data log files.	
6	Entity State	6	a TCC verifies entities are displayed at correct scenario locations throughout scenario	Verifies using 2D & 3D viewers (& RCCSII display) that entities are in orbits and wingmen are following leads. Reports anomalies when noted	

UNCLASSIFIED

Federation Initialization

This section is an unknown at this point ... this needs to be updated with the actual steps to get the federation initialized – until we know what federation management tools and processes will be used can't begin to fill this in – it is left in our original format – just to indicate what previously was here.

Seq. #	Sequence Function	Step	Action	Acceptance Criteria					Pass Fail
7	IFF Response Interaction (Join Viewers as E2 & AEGIS verify IFF interrogate)	7	a	E2 verify all tracks are being displayed on the E-2C tactical system and correct positions and Ids are being reported	E-2C verifies correct IFF codes and aircraft cockpit displays have correct IFF designations				
				18E/F W 18E/F W ATR INL VAL Cruiser SR	F/A- F/A- C Civ Air LR P-3C AEGIS Civ Air	I 62 62 n/ 2 2602 2210 0576 577 /a 6 n/a	II 2302 2403 n/a 2 3207 3301 3401 3402 /a 5210 No n/a	III 3400 3400 6001 ¹ 3207 3301 3401 3402 6002 ¹ 5210 Fnd Fnd n/a	IV Fnd Fnd No Resp Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
8	Platform Configuration	8	a	AEGIS verify all tracks are being displayed on your tactical system and correct positions and Ids are being reported	AEGIS verifies all IFF codes are correlated and being reported correctly				
				TCC uses 3D display to verify correct visual representation and orientation of each entity	TCF 3-D viewer displays correct platform configuration, as verified by test controller.				

UNCLASSIFIED

E-2C Tactical Operator Procedures

Seq. #	Sequence Function	Step	Action	Acceptance Criteria	Pass Fail
			THE FOLLOWING PROCEDURE WILL BE REPEATED FOR EACH RUN OF THE DATA REGISTRATION TEST MATRIX.		
	Pre-test Set-up		Radar: Ch. 5, Medium PRF, 6 rpm	Verify on ACIS.	
			IFF: Mode I, II, III, C and IV	Verify on ACIS.	
			Videos: As desired. Recommend monitoring RTSV and PSV. Save setup if desired.	Verify on ACIS. File name _____	
			Select Tentative Tracks for display Track Display Setup	Verify on ACIS. File name _____	
			Prehookup: Set up on display	5. A 6. CAN 7. Filter No 8. Miss Counter 9. Brg/Rng	
			Geo Points: Enter geographical points iaw CRS Data Registration Excursion. Save load.	Verify on ACIS. File name _____	
			Expected PI: Enter expected PIs on all Blue aircraft iaw CRS order of battle.	Blue Force Mode II/Platform Type: Object 1: II _____ Class _____ Object 2: II _____ Class _____ Etc.	

UNCLASSIFIED

E-2C Tactical Operator Procedures					
Seq. #	Sequence Function	Step	Action	Acceptance Criteria	Pass Fail
			Link 16: Enter ownship JTN, JTN limits, JTIDS Init specified load, as assigned. Auto-assoc tracks enabled. Auto-report local trks enabled.	Verify on ACIS. E-2C TN _____ E-2C TN Limits _____ Auto-Assoc _____ Auto-Report _____ JTIDS Load _____	
			DX: Select DX points.	DX Points: TrkFile Rpt File L16 Rcv L16 Xmit L16 Dbase L16 Prmtr	
			Start DX. Enter DX file name as SIAPDR_X, where the X represents the test matrix run number. Select REC to start DX.	File on hard drive. File name _____	

UNCLASSIFIED

E-2C Tactical Operator Procedures

Seq. #	Sequence Function	Step	Action	Acceptance Criteria	Pass Fail
	Scenario Start		Perform Link-16 net entry. Verify receipt and transmit of link tracks. Select RADIO SILENCE and perform TRACK FILE CLEAR.	Verifies system operation. Clears track files so test will start with new data.	
			Come out of radio silence, by selecting NORMAL mode.	Verify on ACIS.	
			Monitor Data Registration window, note Ownship Correction pad values. Leave Data Registration Window up continuously, if feasible.	Verify on ACIS. Periodically record pad values. Pads: N/S _____ E/W _____	
			Monitor and verify local and/or remote track on all CRS tracks. Monitor detection and acquisition of all Blue/Red tracks iaw CRS. Manually ID Blue Force objects as tracks are established if expected PI function fails. Red Force tracks will be ID iaw ??????	Verify on ACIS. Compare to CRS object list. (Need object list)	
			Verify auto-reporting of local tracks Link-16. Manually report local tracks to auto-reporting links.	Verify auto-reporting of local tracks Link-16. Manually report local tracks to auto-reporting links.	
			Verify auto-reporting of local and remote tracks. Associate and correlate local and remote tracks.	Verify auto-reporting of local and remote tracks. Associate and correlate local and remote tracks.	
			Monitor Link control and track correlation. Note unexpected events.	Monitor Link control and track correlation. Note unexpected events.	
			Monitor dual track situations and note JTNs and ACNs, as appropriate.	Monitor dual track situations and note JTNs and ACNs, as appropriate.	
	Scenario FINEX		Upon FINEX secure DX. Reconfigure for next run.		

UNCLASSIFIED

APPENDIX I: DETAILED ACTION PLAN

The action plan should provide a detailed schedule for administrative use.

Table I-1. Detailed Action Plan

Tasking	July	August	September	October	November
I. Define Federation Objectives		X			
1. Understand analysis needs for data registration critical experiments and impact on construct of the federation (SIAP-Votruba, Youmans, JITC-VTC, JITC-FHU) (Youmans is responsible for overarching DMAP) (8/9)		X			
2. Define attributes and MOPs for data registration and the data needed from the federation to support analysis (SIAP-Votruba, Youmans, JITC-FHU, JITC-VTC, E-2C, 8/30)	X				
3. Understand Analysis Infrastructure (metrics, tools...) (SIAP- Corona, Votruba; JITC-FHU; JITC-VTC , 8/16)					
II. Conceptual Analysis (scenario; conceptual design, federation requirements)		X			
1. Document conceptual analysis (identify in pictures or in words the scenario, the federation requirements, and at what fidelity. At the same time, begin documentation on the scenario (8/12)		X			
2. Coordinate with the CRS Team to propose reference scenario (8/22)		X			
a. CRS Team to propose reference scenario (8/22)		X			
b. Review of scenario at SPA (CRS; 8/22)		X			
3. Determine and document federation requirements (federation management) (JITC-VTC;9/5)		X			
a. Determine system requirement/report (JITC-VTC;9/5)		X			
b. What is required of a scenario playback (JITC-VTC;9/5)		X			
c. What is needed for Data Collection and Federation Management? (JITC-VTC SIAP-Corona) 9/5)		X			
d. Equipment and computer program requirements to E-2C (9/6)		X			
III. Design E-2C Pilot Federation (select federates, federation design, FOM, federation agreements, federate design, implement federation)					

UNCLASSIFIED

1. Determine method for scenario generation and playback. (JITC-VTC, JITC-FHU) (9/5)	X			
2. Designate Federates and representational responsibilities (8/23)		X		
a. System representation (JITC-FHU, E-2C)	X	X		
Conduct pre-verification of system representation		X		
b. Generic system representation (TBD) (JITC-FHU)		X		
d. Data Collection (SIAP-SE, E-2C, Corona)		X		
e. Federation management (JITC-FHU)		X		
3. Develop test plan (SIAP-SE, E-2C, JITC-FHU)	X	X	X	
a. Test plan outline published (SIAP-SE; 8/28)			X	
b. Test Procedures (E-2C; 9/3)				X
c. Test Procedures (E-2C; 9/9)				X
d. Signed Test Plan (SIAP-SE; 10/16)				
e. Pre Test Readiness Review (SIAP-SE; 10/22)				
f. Test Readiness Review (SIAP-SE; 10/29)				
g. TPWG#3 (SIAP-SE; ?)				
4. Develop FOM, using conceptual analysis, DMAP, design rules, and performance considerations. Map against the SE REF FOM (JVB/JSB merged FOM; 002:9/5; final 9/17)			X	
5. Document how federates will meet federation requirements (e.g., bias, time synchronization...) (E-2C, 10/9)				X
6. Describe the Ongoing VV&A approach (E-2C, 10/9)				
7. Determine security needs (need network, etc.) (E-2C, 10/9)				
IV. Develop E-2C Pilot Federation				
1. Update federates to support federation needs (E-2C, 10/9)				X
2. Develop and deliver CRS driver (JITC-VTC) (10/15)				
3. Generate CRS data (SIAP-SE, 9/3; final 9/15)				
4. Integrate analysis infrastructure (E-2C, Corona, JITC-FHU) (10/1)			X	
V. Plan, Integrate, and Test federation				

UNCLASSIFIED

UNCLASSIFIED

1. Develop Federation Implementation Plan				X		
a. Determine Federation Agreements. (Specify management scheme, version of RTI, data marshalling, time management schema, deliver mechanisms, use of DDM) (JITC-VTC, 9/17)				X		
b. Integration/Test Schedule (JITC-VTC; 9/27)			X			
c. FEPWA (JITC-VTC; 9/27)			X			
2. Generate test report (SIAP-Youmans; JTIC-FHU) (9/22)			X			
3. Integration and Testing (10/15-11/1)				X	---	X
VI. Execute Federation						
1. Run Event; collect data (E-2C, 11/4-15)				X	---	X
2. Conduct VV&A (10/15-11/1)			X	---	X	
VII. Analyze Data (SIAP SE, 11/4-12/31)						
Quick look report and review session (All)				X	---	

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX J: FEDERATION DEVELOPMENT (M&S Venues)

Appendix J provides further description of the test federation than what was discussed in Section 2.

For example, "Simulation, ground truth, and control data will be communicated across RTI NG Version 1.6 and Link 16 traffic will be exchanged via simulated network using SPAWAR gateway terminal emulators (GTEs). Figure J-1 represents the resulting architecture."

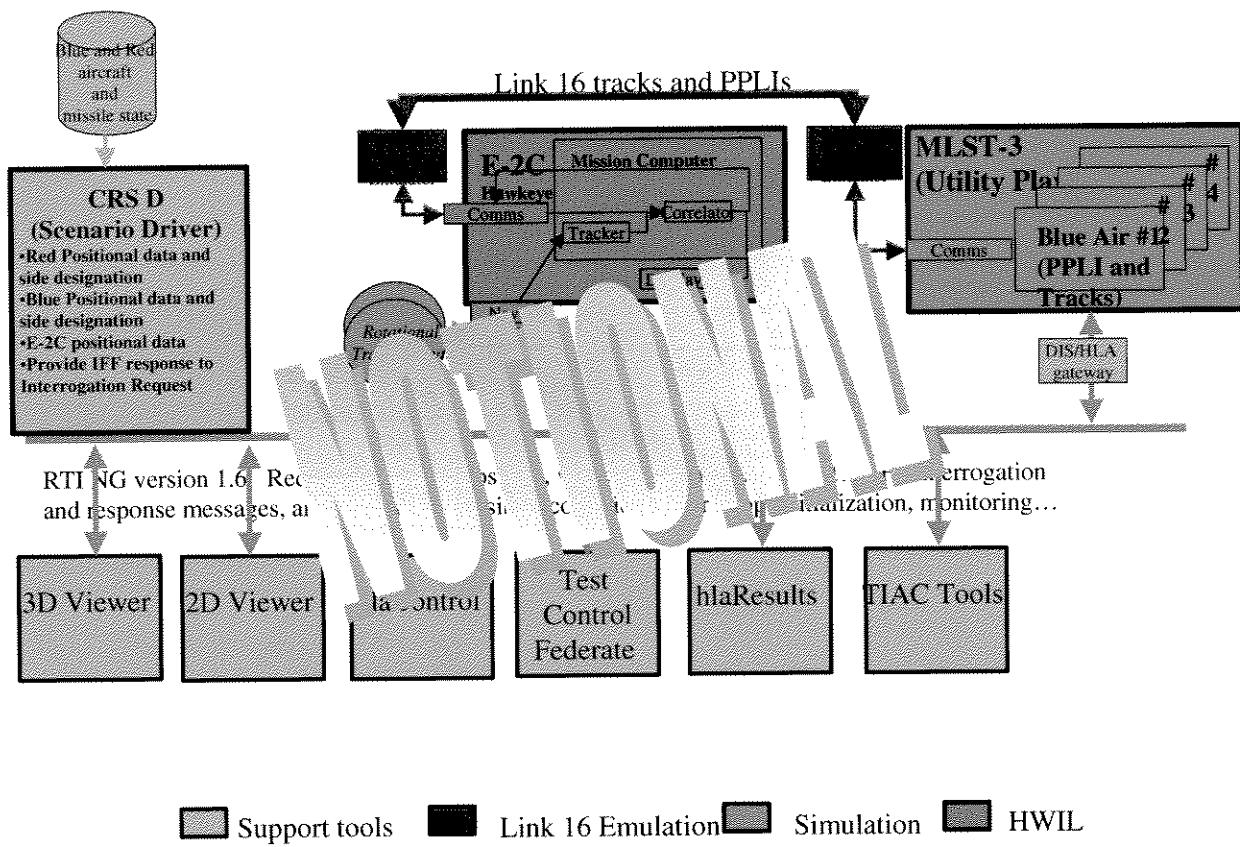


Figure J-1. SIAP HWIL JDEP pilot federation

Provide further details regarding system representation, interface and information processing. Provide an overview followed by a specific breakout of each system.

For example:

Federation Tools: The ESTEL tool suite provides data collection, control and views of the federation. For this event, the Test Control Federate

UNCLASSIFIED

and the viewers will be run from a single workstation along with hlaControl and hlaResults."

For example:

Test Control Federate: The Test Control Federate (TCF) provides the ability to create/destroy the federation and to issue Start and Stop scenario commands. It has the ability to support a display of each federate's status."

For example:

2D Viewer Federate: The 2D viewer provides a plain view display of federation and all active units. It is an adaptation of a 2D viewer originally developed by Meta VR. It uses ADRG (Arc-second Digitized Raster Graphics) for map display."

Figure J-2 gives a notional example of the federation object model object classes.

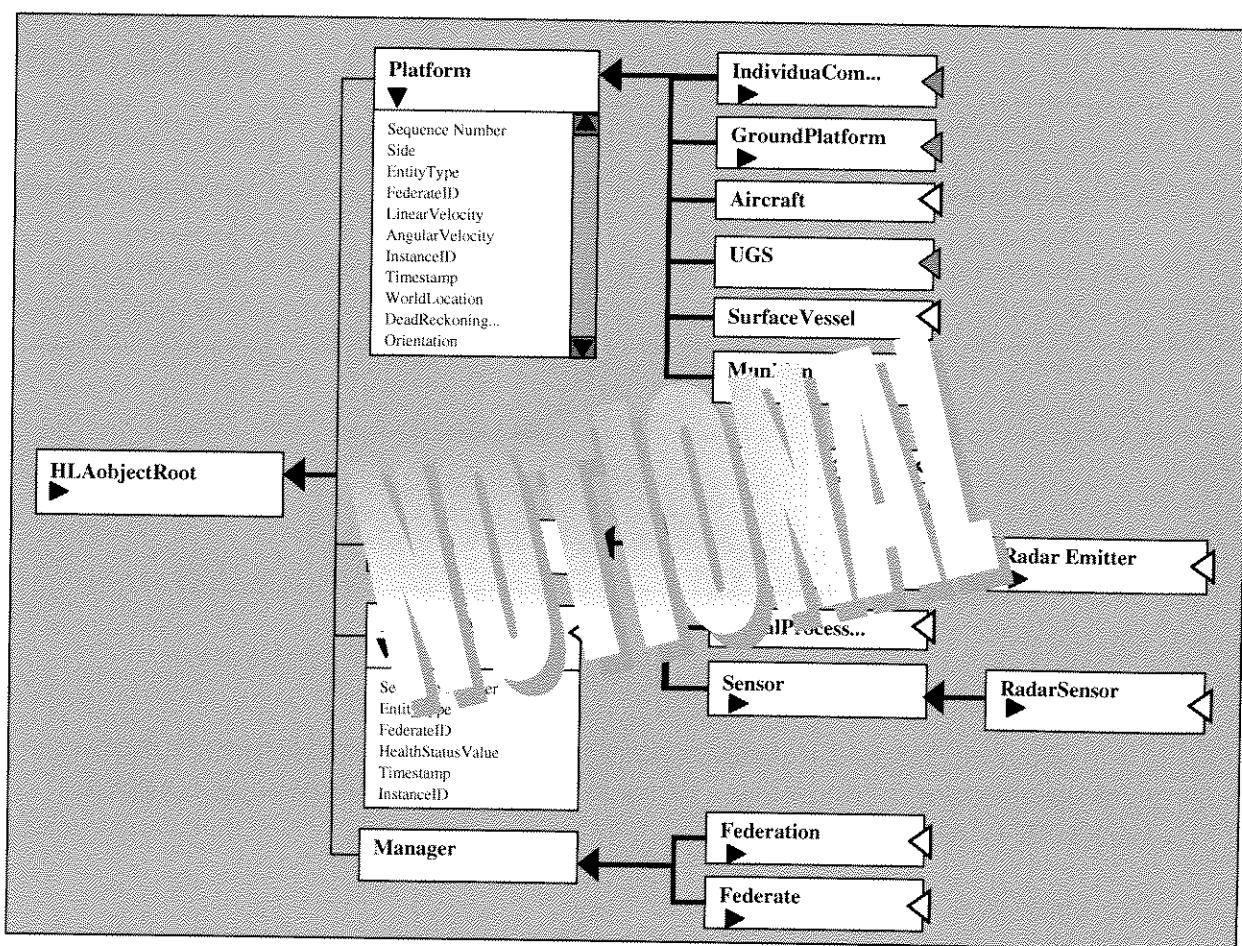


Figure J-2. FOM object classes

Figure J-3 shows a notional set of interactions for a typical federation.

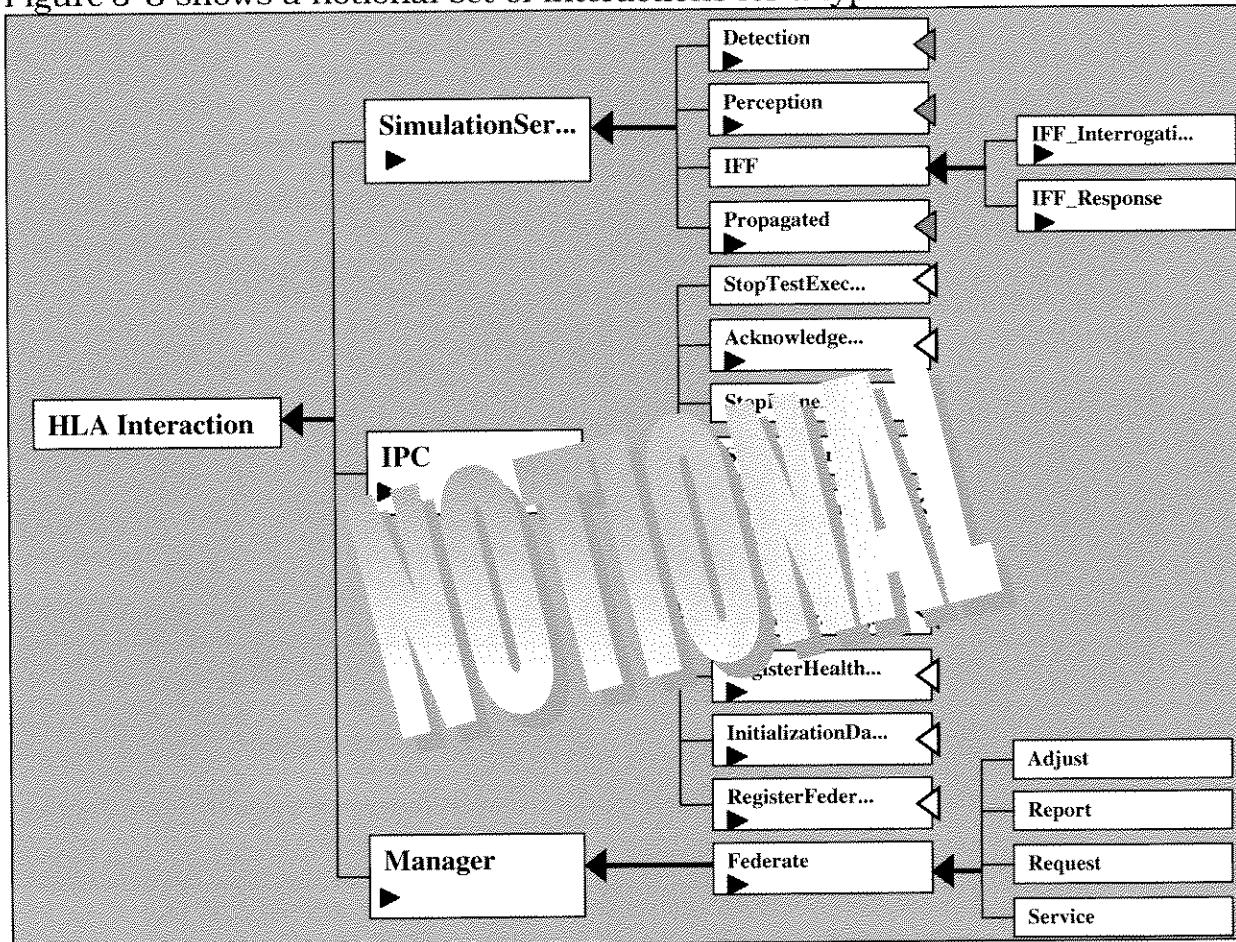


Figure J-3. FOM interaction classes

Figure J-4 shows the federation key attributes for a notional FOM.

UNCLASSIFIED

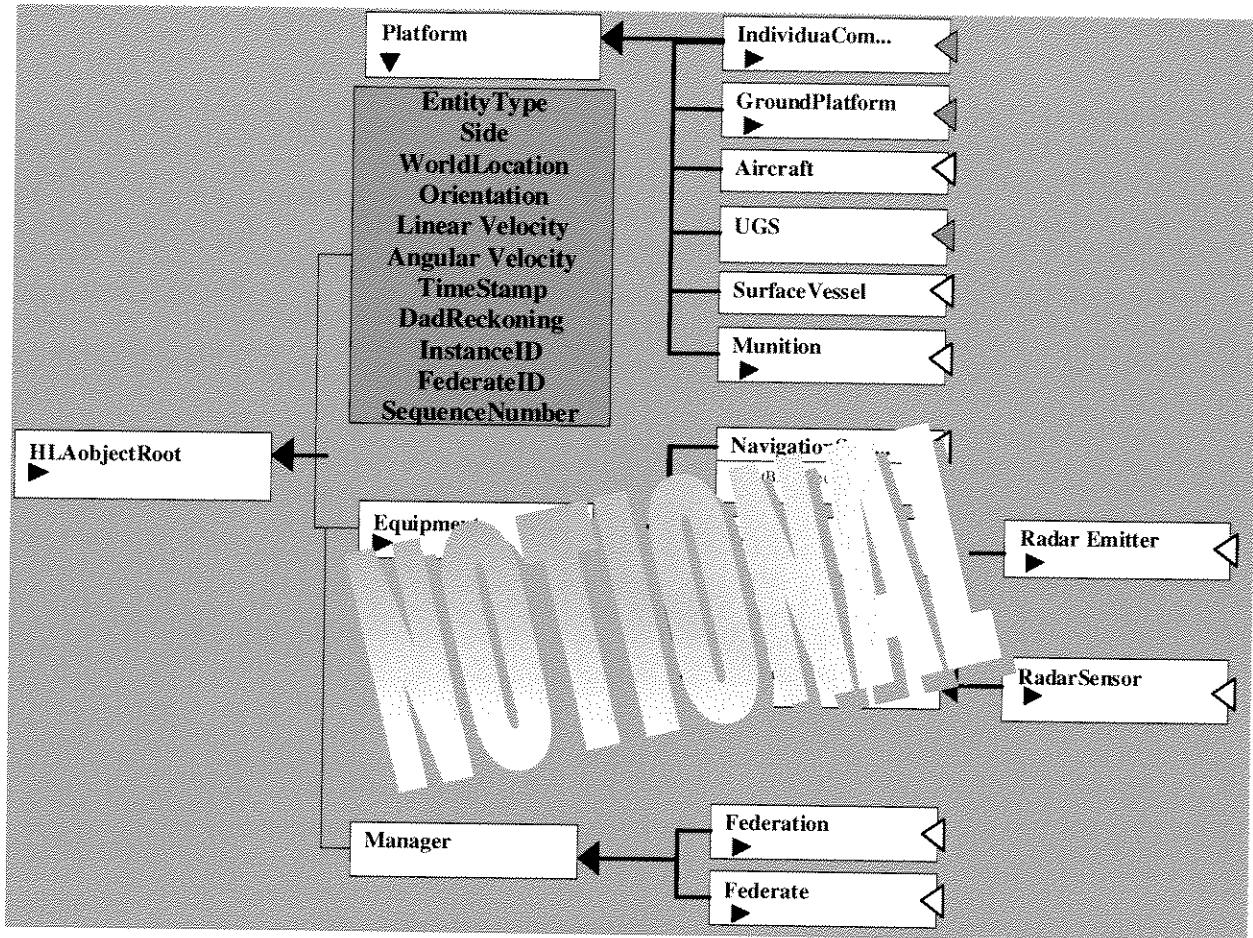


Figure J-4. FOM key attributes

Tables J-5 and J-6 show the publish/subscribe activity of the federation components for the object classes and their interactions.

UNCLASSIFIED

Table J-1. Publish/Subscribe Activity of Object Classes

OBJECT CLASS	FEDERATE		Test Contr	MaResults	TiAC
	CRS Sc	Uti			
Equipment.Sen					S
Equipment.Navi					S
Platform.Aircraft					S
Platform.Surface					
Platform.GroundP					
Platform.UGS (PS)					
Platform.Munition (I)	P	S		S	S
Platform.IndividualCombatant (PS)				S	
FederateStatus	P	P	P*	S	P

* = OPTIONAL
 P = Publish
 S = Subscribe

UNCLASSIFIED

Table J-2. Publish/Subscribe Activity of Interaction Classes

INTERACTION CLASS		FEDERATE	CRS Server	E2C	Utility Player	hlaControl	2D view	3D Viewer	TIAC	hlaResults
IPC										
StartTestExecution (IR)							S	S	S	
StopTestExecution (IR)							S	S	S	
StartInlineLoad (IR)										S
StopInlineLoad (IR)										S
InitializationLoad (IR)									S	S
InitializationDone (IR)									S	S
StartScenario (IR)										S
RegisterFederate (IR)					I	P	P*	P	S	
AcknowledgeTestExecution (IR)					S	S	S*	S	P	
RegisterHealthStatusItem					P	P	P*	P	S	
SimulationService										
Propagated (and subclasses)										
Perception (and subclasses)										
Detection (and subclasses)										
IFF										
IFF_Interrogation (IR)					S	P	S			S S
IFF_Response (IR)					P	S	S			S S

* = OPTIONAL

P = Publish

S = Subscribe

APPENDIX K: DATA ANALYSIS PLAN

The data analysis plan includes data management, extraction diagrams, extraction point tables, data formats, archiving, and any additional information on the measures of effectiveness or measures of performance that was not already addressed in the critical experiment discussion in Section 2.2.

ORGANIZATION AND MANAGEMENT

This section should identify the organization of the analysis effort. Depending on the venue (live vs modeling and simulation), provide a description of the appropriate roles of key functions. These may include Data Analysis Manager, Data Collection Coordinator/Manager, Site Data Coordinator, Site Leads, Test Director/Site Test Directors, and Event lead analyst. Assign names and responsibilities for each function.

DATA RECORDING AND COLLECTION

Provide a brief description of the data collection and management process.

Success Criteria

Discuss success criteria and who determines if the criteria are met based on what data provided.

Automated Data Management

Describe any tools for automated data collection. Provide a table, if necessary to describe tools used by each system involved in the test.

Recording Media

Describe the recording media used by each system. Use a table if necessary.

Data Extraction

For each system and any other elements participating in the test (e.g., infrastructure, truth module), provide a data extraction diagram for collecting the data required for the test. See Figure K-1 for an example.

UNCLASSIFIED

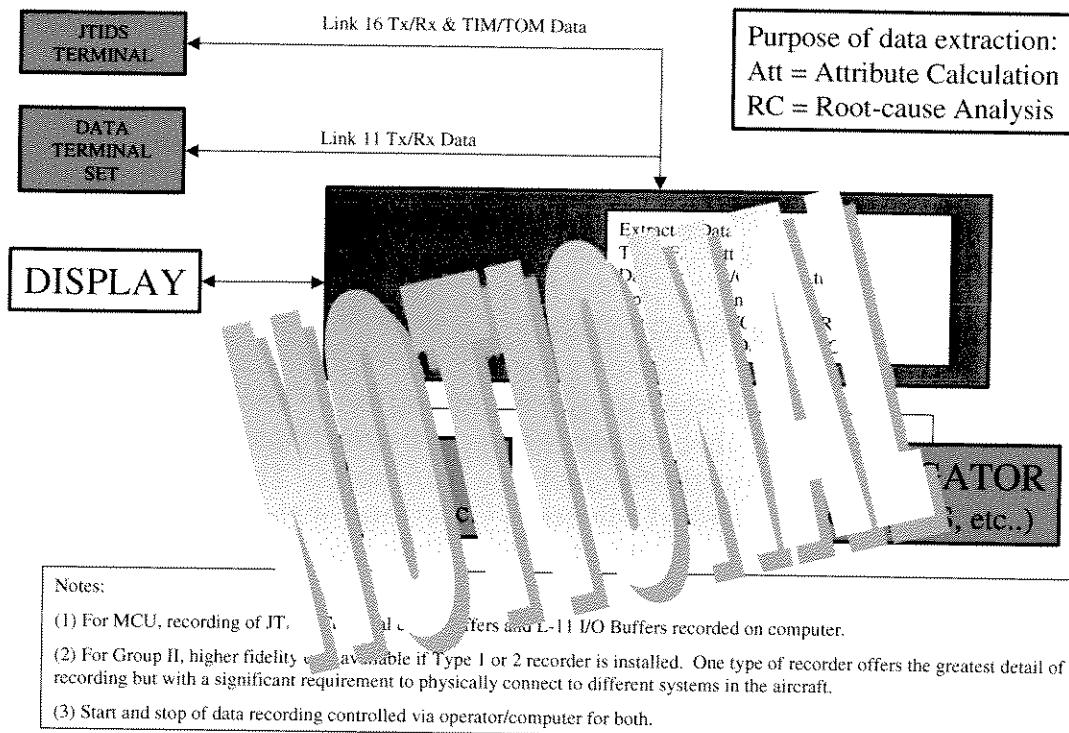


Figure K-1. Data extraction diagram.

If desired, provide a data extraction table listing the location, name, and function of the extraction points.

Test Observation Reports

All test observations such as anomalies, events of interest, or any problems should be captured in a test observation report (TOR). A sample TOR form is provided in Appendix L. Describe the TOR adjudication process; that is, how TORs are assigned for further analysis or whether the TOR should be entered into the Lessons Learned Knowledge Base.

Manual Data Collection

In this section, describe the minimal requirements for recording manual data, which includes completing the chronological log (if applicable), annotating test run summaries and procedures, generating TORs, and labeling automatic data extraction media.

Recorded Data Labeling

Indicate how the data recorded will be labeled. Include labeling plans for tapes, CDs, optical disks, and any other media storing relevant test data.

Data Transfer

Describe any data transfers that will take place during or after the test. Include information on encryption or electronic means required.

File Naming Conventions

If called for, indicate any file naming convention that will be used for the test to facilitate locating data among test participants.

DATA ANALYSIS PROCESS

This section describes the data analysis process, including calculation of the SIAP attributes and critical experiment analysis.

SIAP Attributes

The definitions of the SIAP attributes were provided in Appendix B. In this section, describe how the SIAP attributes will be computed, including use of the Performance Evaluation Tool (PET) and the Automated Reconstruction and Correlation Tool for Interoperability Characterization (ARCTIC).

Measures of Performance

In this section, provide a detailed description of the measures of performance (MOPs) defined in Section 2.2. When available, provide mathematical derivations and the steps to compute the MOPs. Provide notional charts as fitting. For example, Figure K-2 denotes the number of correlations achieved as a function of azimuth bias applied.

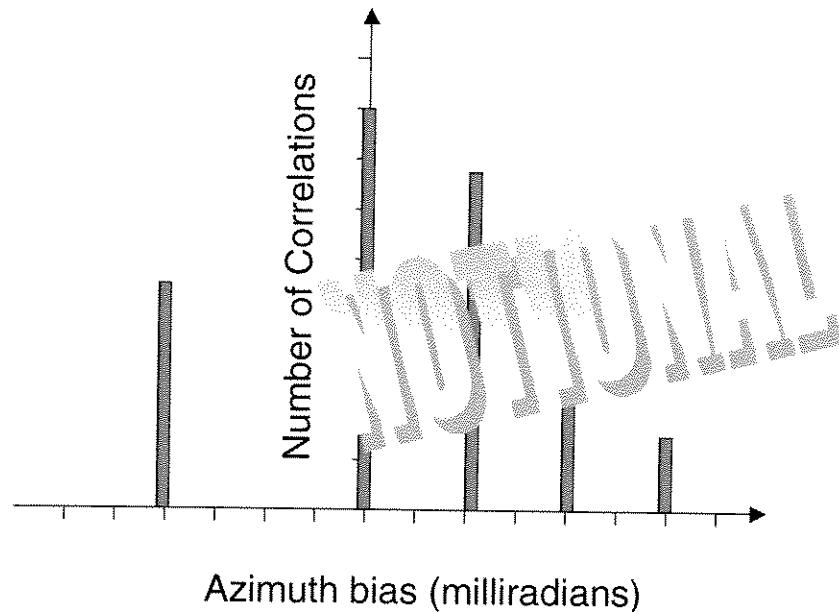


Figure K-2. Notional number of correlations vs azimuth bias

DATA COLLECTION AND ANALYSIS FLOW

Provide a diagram showing the data collection and analysis flow for the test. See Figure K-3 for an example.

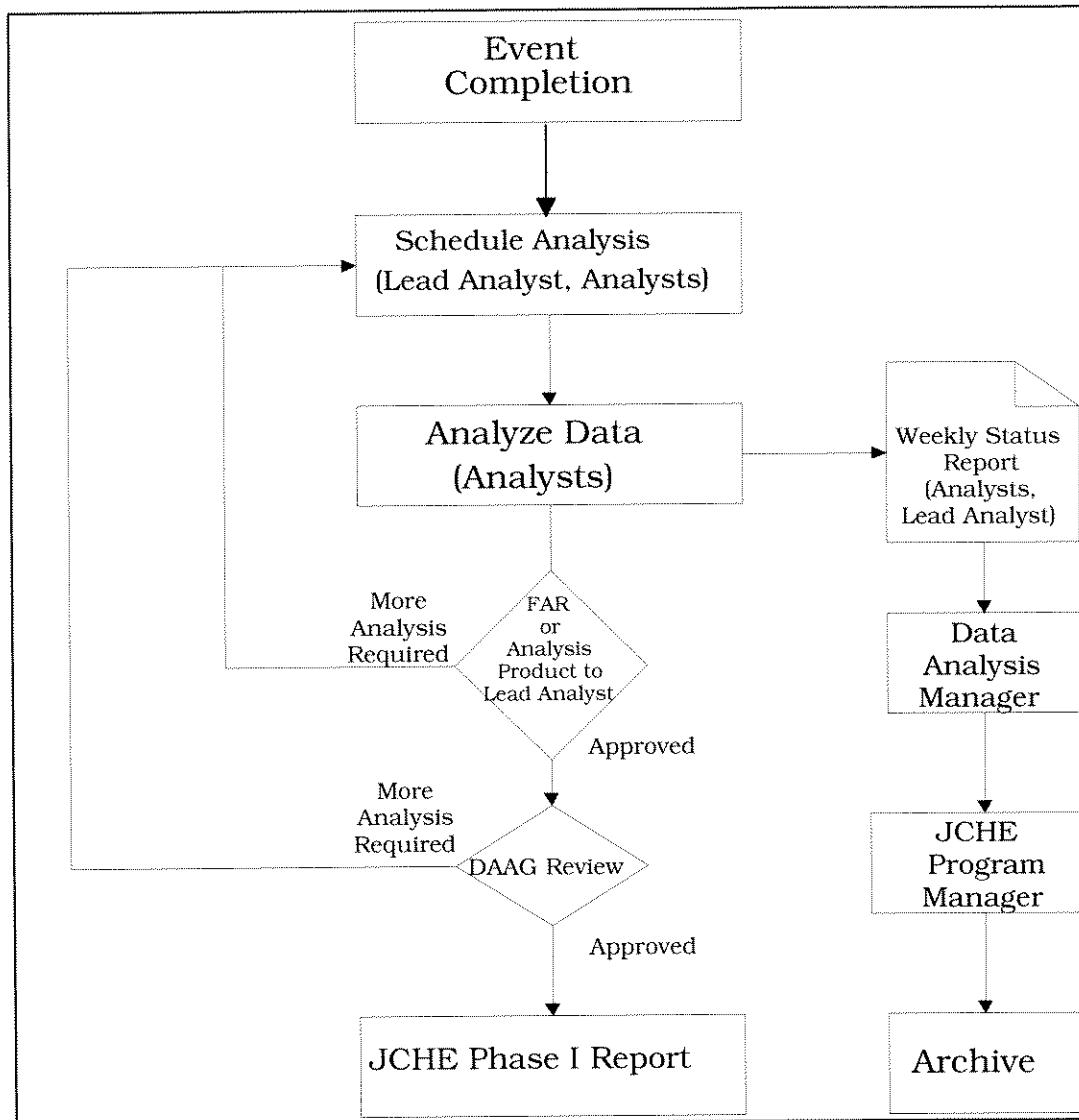


Figure K-3 Notional data collection and analysis flow diagram

DATA REDUCTION/ANALYSIS TOOLS

For each system participating in the test, provide the data reduction tools to be used and a brief description for each.

DATA ARCHIVING

Identify which organization will retain the data and the timeframe for doing so. Identify a point of contact to whom inquiries should be directed, and provide voice and e-mail contact information.

UNCLASSIFIED

ANNEX K-A Chronological Log

This annex contains an example of a form that should be used to record the chronological list of events as they occur during testing. Items to be recorded include: test observations, events of interest, changes in configuration or equipment status, and any other information that would assist in the analysis;

ANNEX K-B PET Input Format

Data Required for SIAP Attribute Calculations

In this annex, provide details regarding how SIAP attributes will be calculated. Provide version numbers of computer programs used (Table K-B-1) and formats (Table K-B-2). For example, "There is a discussion of the ESTEL data reduction tools in Appendix D. Prior to the test, Corona will provide updated PET and ARCTIC tools and training. Table K-B-1 lists the program version of packages that will be used for analysis."

UNCLASSIFIED

Table K-B-1. Computer Program Requirements

Computer Program	Function	Provider
E-2C tool suite	Data reduction	ESTEL
PET	Scanning	Corona
ARCTIC	Tracking	Corona/CNA

Table K-B-2. PET Input Table, WAM Format

VARIABLE	DEFINITION	NOTES	DYNAMIC RANGE (TBD)
SYS	System Variant 30 = E-2C		
CTSL	This is the number used to identify tracks in the system's data base. It is unique for each track.		
LTN	Latitude in degrees, minutes, and seconds.		
XT	Longitude in degrees, minutes, and seconds.		
DVALTIME	Own Ship Positioning Accuracy		
OSLAT	Own Ship Latitude in degrees, minutes, and seconds. Format: DD.DDDDD	Own Ship Positional Information	
OSLONG	Own Ship Longitude in degrees Positive for East - Negative for West Format: +/- DDD.DDDDD		
OSALT	Own Ship Altitude in feet		
OSHDG	Own Ship Heading in degrees		
OSSPD	Own Ship Speed in knots		
X	X Y Z Distance from own ship reference center in data miles	Track Positional Information Method #1	
Y			
Z			

UNCLASSIFIED

XVEL	X Y Z Velocity in data miles per second	Track Kinematics Method #1	
YVEL			
ZVEL			
LAT	Latitude in degrees Positive for North - Negative for South Format: +/- DD.ddddd	Track Positional Information Method #2	
LONG	Longitude in degrees Positive for East - Negative for West Format: +/- DD.ddddd		
ALT			
CRS			
SPD			
CLM			
CAT	<p>1 = Air</p> <p>2 = Surface</p> <p>3 = Subsurface</p> <p>4 = Land</p> <p>5 = Space</p>		
ID	Identification 0 = Pending 1 = Unknown 2 = Assumed Friend 3 = Friend 4 = Neutral 5 = Suspect 6 = Hostile 7 = Undefined		
LTQ	Local Track Quality 0-15 = 0-15	Track Quality	
RTQ	Remote Track Quality 0-15 = 0-15		
MUTRK	Mutual Track Indicator 0 = Not Mutual 1 = Mutual		
LR	Local or Remote 0 = Local 1 = Remote		
RU	Reporting Unit The LTN of the unit reporting this track		
M1	Mode I	Track IFF information	

UNCLASSIFIED

M2	Mode II		
M3	Mode III		
M4	Mode IV 0 = Not Interrogated/No statement 1 = Interrogated, No response 2 = Interrogated, Invalid response 3 = Interrogated, Valid response		
DI	DI Code		
SIZE	Size/Strength 0-15 = 0-15		
TRKST	Track Status 0 = Target		
ENG			
OSENG	Track Status 1 = Target 2 = Engaged 3 = Engaged 4 = Engaged 5 = Target Destroyed 6 = Partially Effective 7 = Not Effective 8 = Engagement Broken 9 = Heads up 10 = Engagement Interrupted 11 = Investigating/Interrogating 12 = Shadowing 13 = Intervening 14 = Covering 15 = BDA unknown		

UNCLASSIFIED

RENG	Remote engagement status 0 = No statement 1 = Recommend reattack 2 = Weapon assigned 3 = Tracking 4 = Firing 5 = Target Destroyed 6 = Partially Effective 7 = Not Effective 8 = Engagement Broken 9 = Heads up 10 = Engagement Interrupted 11 = Investigating/Interrogating 12 = Shadowing 13 = Intervening 14 = Covering 15 = BDA unknown		
TRKSRC	Track Source 0 = Source N/A 1 = Link 4A 2 = Link 11 3 = Link 16 4 = Link 16 DownLink 5 = IFF 6 = Manual 7 = SPY 8 = S 9 = 6 5 9 S E . = .92 20 = SLQ 21 = SQQ 22 = SQR 23 = SQS 24 = TAC	Track source information	
M1SRC	Mode I Source 0 = Information Unavailable 1 = UPX 29 2 = Link 3 = Manual 4 = CEC 5 = CCU 6 = Link 16 PPLI		

UNCLASSIFIED

M2SRC	Mode II Source 0 = Information Unavailable 1 = UPX 29 2 = Link 3 = Manual 4 = CEC 5 = CCU 6 = Link 16 PPLI		
M3SRC	Mode III Source 0 = Information Unavailable 1 = UPX 29 2 = Link 3 = Manual 4 = CEC 5 = CCU 6 = Link 16 PPLI		
M4SRC	Mode IV Source 0 = Information Unavailable 1 = UPX 29 2 = Link 3 = Manual 4 = CEC 5 = CCU 6 = Link 16 PPLI		
IDSRC	ID Source 0 = CEC 1 = CECU 2 = CEC 3 = CEC 4 = CEC 5 = CEC 6 = CEC 7 = CEC 8 = CEC 9 = CEC 10 = CEC 11 = CEC 12 = CECU		
TT	Trouble track 0 = Not a trouble track 1 = Trouble track		
PLAT	Platform		
ACT	Activity		
SPECTYP	Specific type		
CGTN		Additional track numbers	
CEPN			
CECUID			

UNCLASSIFIED

ANNEX K-C Data Extraction Points

Use this annex to provide detailed data extraction points for each system in the test.

ANNEX K-D Security Classification Guides

This annex should contain the security guidelines for the test. These include specific security instructions for the handling of the data to be encountered during the test.

UNCLASSIFIED

APPENDIX L: SAMPLE FORM

Table L-1. Test Observation Report (TOR)

Test Observation Report (TOR)		
Classification: (circle one) UNCLAS CONF SECRET	System(s) TOR is written against:	TOR Number:
		Operator Position:
		Reported by:
		Phone #: Email:
Date of event:	Time: Zulu Time: Or Local Time:	Tape Numbers:
Description:		
Impact: (optional)		
TOR Instructions		
Classification	Security classification of the TOR.	
System	Aircraft, ship, or land based site (TAOC, CRC, ICC, DDG, etc.) affected by observed anomaly.	
TOR number	TOR number (to be assigned when entered into tracking table or database)	
Operator Position	Watch/test station where the observation was made.	
Reported by	Originator of the TOR and command.	
Phone Number	Phone number originator can be reached at after event.	
Tape Numbers	Complete tape number for the DX tape to use for analysis (include system, if known).	
Date of event	Date of observation (MMDD).	
Time	Time of observation. Designate either Zulu or Local Time.	
Description	A thorough description of the observation. Should include system name and configuration, scenario information, tracks, identifications, track kinematics, and other information necessary to establish the same environment as the observation. Also include information as to what actually happened during the observation.	
Impact	A brief description of the operator impacts this deficiency had on the operator or system if not corrected.	

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

APPENDIX M: POINTS OF CONTACT

Identify names of participants and their roles in the event. Provide contact information.

Table M-1. Participants in the JDEP Planning

Name	Organization	Phone	Email
Last name, First Name	Company, Office Symbol		

Table M-2. Test Directors/Site Test Directors

Site	TD / Site TD	Phone	Email
For example: "Test Director (Primary)"			
For example: "NAWC-AD (E2C)"			
For example: "Data Distribution Manager"			
For example: "Data Collection Manager"			

Table M-3. Data Collection Team

System	Location	Title/Organization	Name	Phone	Email
For example: "REPOSITORY"	For example: "NAVSEA Corona, CA"	For example: "DX Coordinator, NAVSEA Corona"			

Table M-4. Site Leads/POCs

Site	Primary/ Alternate	Site POC	Phone	E-Mail
For example, "NAWC-AD (E-2C)"	Primary			
	Alternate			

UNCLASSIFIED

Table M-5. Lead Analysts

System	POC	Phone	Email

Let's make sure we separate concerns —

1. There is an executive summary for this document
2. There are things you expect in the exec summary of other documents.

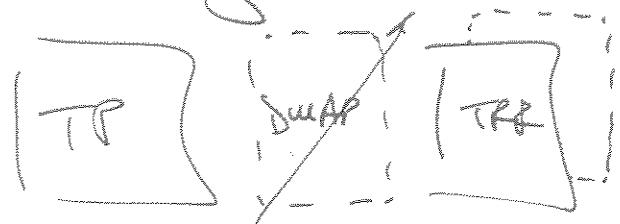
We fail to link the Approval of the TRR explicitly with the authority to begin testing

1. — signature page
2. — exec summary

Test Plan signature → Ready for TRR
we agree with the objectives & satisfied that our method of test will achieve our objectives

TRR signature → Execute

- Test Plan is ready
- Infrastructure is ready & accredited
- Training & Safety Reviewed — no showstoppers



Harry.Dutchyshyn

Fitness Report of ELSTAD
12/21/04 11:32 AM



Ghyzel Paul LCDR SIAP-AN

From: Youmans, Betty [eyoumans@spa.com]
Sent: Tuesday, December 21, 2004 12:36 PM
To: Ghyzel Paul LCDR SIAP-AN
Cc: Karoly Steve Civ SIAP-AN
Subject: RE: Documents on Worksite

Col. Dutchyshyn —

Following is a synopsis
of our incorporation of
your comment —

JK, Paul

Paul,

Dutch is looking for two things, a checklist in the Exec Summary that a TRR must address and a mention of accreditation in the List in Chapter 6.

I have updated the Exec Summary Paragraph to read:

In the Executive Summary, provide a summary of essential information regarding the testing/simulation event. Include high-level objectives, dates and location of the event and how the results will be used. Provide a summary to support a recommendation whether or not to proceed forward with the test based on the following outline:

1. System test status and checkout performance
2. FOM status (M&S venues)
3. Equipment and computer program configuration
4. Test coordination
5. Success criteria
6. Go/No-Go criteria
7. Recommendation for accreditation of federation (M&S venues)
8. Recommendation whether or not to proceed with test as planned.

I have augmented the list in Chapter 6 to read the following (added bottom 2 entries):

1. System test status and checkout performance
2. FOM status (M&S venues)
3. Equipment and computer program configuration
4. Test objective(s) and procedure review
5. Test coordination
6. Security
7. Success criteria
8. Go/No-Go criteria
9. Real-time data requirements to include format, algorithms, and data definitions
10. Quick-look data requirements to include format, algorithms, and data definitions (if available)
11. Final data requirements to include format, algorithms, and data definitions
12. Recommendation for accreditation of federation (M&S venues)
13. Recommendation whether or not to proceed with test as planned.

I believe these should meet Dutch's comments. Do you agree, or do you want any further changes? If no further changes, then I will send back the updated version with Kelly this afternoon. I will just slip in the two new sets of pages impacted.

Betty

-----Original Message-----

From: Ghyzel Paul LCDR SIAP-AN [mailto:Paul.Ghyzel@Siap.Pentagon.mil]
Sent: Tuesday, December 21, 2004 7:56 AM
To: Youmans, Betty
Cc: Karoly Steve Civ SIAP-AN
Subject: FW: Documents on Worksite

OK, Paul

Betty,

The std test plan and test report templates are signed, but I need you to come get the std

